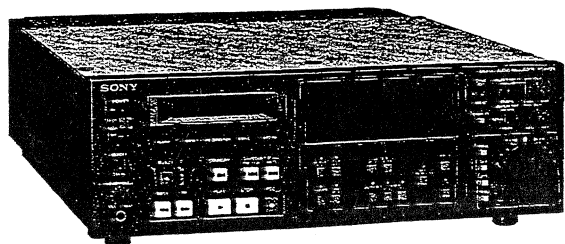


SONY

DIGITAL AUDIO RECORDER

PCM-7010



OPERATION MANUAL

English

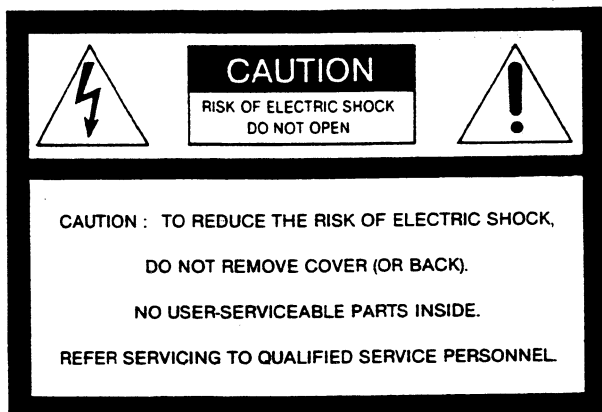
1st Edition (Revised 1)

Serial No. 800001 and Higher (UC)

Serial No. 600001 and Higher (EK)

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

For the Customers in the United Kingdom

WARNING

THIS APPARATUS MUST BE EARTHED

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow: Earth
Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol \perp or coloured green or green-and-yellow.

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

For the customers in the USA

Warning — This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Important — To insure that the complete system (including this peripheral) is capable of complying with the FCC requirements, it is recommended that the user make sure that the individual equipment of the complete system has label with one of the following statements.

"This equipment has been tested with a Class A Computing Device and has been found to comply with Part 15 of FCC Rules."

-or-

"This equipment complies with the requirements in Part 15 of FCC Rules for a Class A Computing Device."

-or equivalent.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC Rules.

For the customers in Canada

This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada

Cet appareil est conforme aux normes Classe A pour bruit radioélectriques, spécifiés dans le Règlement sur le brouillage radioélectrique.

Table of Contents

Preface—A Guide to the Effective Use of This Operation Manual	1
---	---

Chapter 1. Overview

1-1. Principal Features	1-1
1-1-1. General	1-1
1-1-2. Features	1-1
1-2. System Configuration Example	1-4
1-3. Recommended Equipment and Optional Accessories	1-5

Chapter 2. Location and Function of Parts and Controls

2-1. Front Panel	2-1
2-2. Display	2-8
2-3. Connector Panel (Rear)	2-13

Chapter 3. Preparations

3-1. Precautions	3-1
3-1-1. Use and Storage	3-1
3-1-2. Condensation	3-1
3-2. Configuration Examples	3-2
3-2-1. Precautions on Installation and Connections	3-2
3-2-2. Basic Connections	3-2
3-2-3. Connection Examples for Advanced Facilities	3-4
3-2-4. Power Connection	3-10
3-3. Initial Settings	3-12
3-3-1. Selecting the Sampling Frequency	3-12
3-3-2. Selecting the Input Signal	3-14
3-3-3. Selecting the Sync Signal	3-15
3-3-4. Selecting the REMOTE/LOCAL Setting	3-16
3-4. Power Supply	3-17
3-4-1. Power Supply	3-17
3-4-2. Factory Settings	3-17
3-5. About DAT Cassettes	3-20
3-5-1. Loading and Unloading Cassettes	3-20
3-5-2. Preventing Accidental Erasure	3-21

Chapter 4. Recording and Playback

4-1. Recording	4-1
4-1-1. Checking the Initial Settings	4-1
4-1-2. Selecting the Audio Output Signals	4-2
4-1-3. Selecting the Sync Recording Mode	4-3
4-1-4. Selecting the Recording Mode	4-4
4-1-5. General Information on Time Code	4-5
4-1-6. Basic Recording Procedure	4-7
4-2. Playback	4-19
4-2-1. Playback Procedure	4-19
4-2-2. Cuing the Tape	4-20
4-2-3. Locating Specific Points on a Tape	4-22

(Continued)

Chapter 4. Recording and Playback (Continued)

4-3. Advanced Operations	4-27
4-3-1. Controlling the Playback Speed — Variable-Speed Playback	4-27
4-3-2. Outputting Playback Signals Immediately after Pressing the PLAY Key (With DABK-7012 Memory Start Option Installed in the Unit) — Memory Start Function	4-29

Chapter 5. Menu Operations

5-1. About the Menus	5-1
5-1-1. General Discription of the Menus	5-1
5-1-2. Menu List	5-5
5-1-3. Setting the Display and Setting to the Default Values	5-12
5-2. DISPLAY Key Menu Operations	5-13
5-2-1. About the DISPLAY Key Menu	5-13
5-2-2. Setting the Desired Locate Point — LOCATE POINT	5-14
5-2-3. Locating the Program Number — P NO. LOCATE ...	5-16
5-2-4. Displaying the Tape Run Time — ELAPSE	5-17
5-2-5. Displaying the User Bit on the Playback Tape — U-BIT	5-18
5-2-6. Displaying the Input Time Code (when a DABK-7010 is installed) — EXT TIME CODE	5-19
5-2-7. Displaying the User Bit of the External Time Code Input to the Unit (When a DABK-7010 is installed) — EXT U-BIT	5-20
5-2-8. Displaying the Internal Generator Time Code — GEN TIME CODE	5-21
5-2-9. Displaying the User Bit of the Internal Generator Time Code — GEN U-BIT	5-22
5-2-10. Setting the Start Time Value of the Time Code Generator — GEN SET TIME	5-23
5-2-11. Setting the User Bit — GEN SET U-BIT	5-25
5-2-12. Setting the Variable Speed Value and Display of the Set Value — VARI SPEED	5-27
5-2-13. Renumbering the Program Number — RENUMBER	5-29
5-3. Dial Menu Operations	5-30
5-3-1. Display Menu	5-30
Setting and displaying the input signal gain — “inP GAIN” (INPUT GAIN)	5-30
Selecting and displaying the output signal level — “outP Gain” (OUTPUT GAIN)	5-32
Displaying the error code — “Error”(ERROR)	5-34
Displaying the warning code — “cAution” (CAUTION)	5-35
Displaying the level meter indications numerically — “Au rEF”(AUDIO REFERENCE)	5-36

Chapter 5. Menu Operations

(Continued)

Displaying the peak hold level of the level meter numerically — “Au rEF-P”(AUDIO REFERENCE PEAK HOLD)	5-37
Selecting the menu level of the display menu — “[dSP Grd]”(DISPLAY MENU GRADE) ..	5-38
Displaying the last error point — “LASt Err”(LAST ERROR)	5-39
Displaying the time code format of the tape — “tAPE tc F”(TAPE TIME CODE FORMAT)	5-40
Displaying the presence of an optional board — “option”(OPTION)	5-41
Displaying the rotation time of the head drum — “Hour-t”(HOUR TIME)	5-42
5-3-2. Setup Menu	5-43
Storing customized data for the setup menu — “-- Sto--”(STORE)	5-43
Recalling the stored data of the “-- Sto--” menu — “-- rcL-- ”(RECALL)	5-44
Selecting the basis of the time code — “tc bASE”(TIME CODE BASE)	5-45
Selecting the time code format and the reference video signal frequency — “rEF tcF”(REFERENCE TIME CODE FORMAT)	5-47
Selecting the recording time code (when a DABK-7010 is installed) — “rEc tc”(RECORD TIME CODE)	5-49
Selecting the audio signal format for digital input/output (when a DABK-7011A/7011B is installed) — “dio SEL”(DIGITAL I/O SELECT)	5-50
Selecting the emphasis mode — “PrE EP”(PRE-EMPHASIS)	5-51
Selecting the lock frequency range in external synchronization (word) mode (when a DABK-7011A/7011B is installed) — “SYnc nrr”(SYNC NARROW)	5-52
Selecting the expanded setup menu — “[SEt Grd]”(SETUP MENU GRADE)	5-53
Selecting the setup menu level for the time code — “[SEt tc]”(SETUP MENU for TIME CODE)	5-54
Selecting the operation mode of the internal time code generator (when a DABK-7030 is installed) — “FrEErun”(FREE RUN)	5-55
Selecting the time code output (when a DABK-7010 is installed) — “GEn out”(GENERATOR OUT)	5-57
Selecting whether to regenerate the external time code or not (when a DABK-7010 is installed) — “tc rEGEn”(TIME CODE REGENERATE)	5-58

(Continued)

Chapter 5. Menu Operations

(Continued)

Selecting the user bit when recording (when a DABK-7010 is installed) — “rEc ub” (REC USER BIT)	5-59
Selecting whether to display the user bit data for the DISPLAY key menu or not — “ub diSP” (USER BIT DISPLAY)	5-60
Selecting whether to apply the phase adjustment of the time code output to the analog audio signals or digital audio signals (when a DABK-7010 is installed) — “tc dLY”(TIME CODE DELAY)	5-61
Selecting the setup menu level for the system control — “[SEt SYS]”(SETUP MENU for SYSTEM CONTROL)	5-63
Selecting whether to automatically write the Start ID or not during assemble recording — “S-id Auto”(START ID AUTO REC)	5-64
Selecting the copy ID which will be recorded within the main ID — “coPY id”(COPY ID) ...	5-65
Selecting whether or not to automatically write the time data during assemble recording — “dAtEAuto” (DATE AUTO REC)	5-67
Selecting whether or not to synchronize the playback time code with the phase of the input video signal during playback (when a DABK-7010 is installed) — “SYncPb” (SYNC PB)	5-68
Selecting whether to stop with rollback or not — “rLb StoP”(ROLLBACK STOP)	5-70
Selecting whether or not to activate the memory start when you turn the power on (when a DABK-7012 is installed) — “iS dFLt” (MEMORY START DEFAULT)	5-72
Selecting the duration (delay time) to output the sound after pressing the PLAY key for memory start playback (when a DABK-7012 is installed) — “iS dLY- t”(MEMORY START DELAY TIME)	5-73
Selecting whether or not to accept the command from the INPUT MONITOR key when playing back in local mode — “inPut-S”(INPUT SWITCH)	5-75
Selecting whether to accept the command from the tape transport control keys or not when playing back in the local mode — “PAnEL-S” (PANEL SWITCH)	5-76
Selecting whether to shift the mode to STOP mode or PLAY mode after exiting the cue mode by pressing the CUE key during cue mode — “AFtr cuE”(AFTER CUE)	5-77
Selecting the operation mode of the REMOTE (8P) connector — “r-8Pin” (REMOTE 8-PIN)	5-78

Chapter 5. Menu Operations

(Continued)

Selecting the setup menu level for the display — “[SEt dSP]”(SETUP MENU for DISPLAY)	5-79
Selecting the state that turns on the PB CONDITION indicator — “Pb cond” (PB CONDITION)	5-80
Adjusting the brightness of the display on the front panel — “FL diSP”(FL DISPLAY)	5-81
Setting the time of the internal clock—“dAtE AdJ” (DATE ADJUST)	5-82
Selecting the level meter peak hold mode — “P-HoLd”(PEAK HOLD)	5-83
Selecting the hold mode for the “OVER” segments of the level meters — “o-HoLd” (OVER HOLD)	5-84
Selecting the peak level hold time of the level meters — “HoLd- t”(HOLD TIME)	5-85
Selecting the release time for the level meters — “rLS- t”(RELEASE TIME)	5-86
Selecting the level detection sensitivity that lights the “OVER” segments of the level meters — “o-SEnS”(OVER LEVEL SENSITIVITY)	5-87
Selecting the setup menu level for the signal processor—“[SEt SP]” (SETUP MENU for SIGNAL PROCESSOR)	5-88
Selecting the cross-fade time—“croS FAdE” (CROSS- FADE TIME)	5-89
Selecting the soft mute time—“SoFt cut” (SOFT MUTE TIME)	5-91
Selecting the operation mode of the low cut filter— “LcF” (LOW CUT FILTER)	5-92

Chapter 6. Application Systems with Copying Capability

6-1. General Information	6-1
6-2. Systems with Copying Capability and Their Applications	6-2
6-2-1. Digital Copying between PCM-7010 and PCM-1630 Digital Audio Processor System	6-2
6-2-2. Digital Copying between PCM-7010 and PCM-3402 Digital Audio Recorder	6-6
6-2-3. Digital Copying between PCM-7010 and PCM-3324A or PCM-3348 Digital Audio Recorder	6-9
6-2-4. Digital Copying between PCM-7010 and D-1 or D-2 Format Digital VTR	6-12
6-2-5. Digital Copying between PCM-7010 and BVH-2800 1-inch VTR System	6-15
6-2-6. Tape Copying between PCM-7010 and Analog VTR	6-18
6-2-7. Tape Copying between PCM-7010 and Analog Audio Tape Recorder	6-20

**Chapter 7.
Warning
Indicators and
Error Messages**

7-1. Warning Indicators	7-1
7-1-1. Warning Indicator Lamps	7-1
7-1-2. When the ALARM Indicator Comes On	7-1
7-1-3. When the MUTE Indicator Comes On	7-2
7-1-4. When the PB CONDITION Indicator Comes On	7-2
7-1-5. When the SERVO Lock Indicator Goes Off	7-3
7-1-6. When the REC INH Indicator Comes On	7-3
7-2. Error Messages	7-4
7-2-1. Error Levels	7-4
7-2-2. Error Codes	7-6
7-3. Flashing Indicator Warnings	7-10
7-4. Operating Error Warnings	7-12

Appendixes

Specifications	A-1
General Information on the DAT Format	A-5
Recording Format of the DAT	A-5
Tape Format and Construction of a DAT Cassette	A-6
Track Format	A-8

Index	A-11
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Preface — A Guide to the Effective Use of This Operation Manual

This operation manual will serve you as a guide for using the PCM-7010 Digital Audio Recorder. General information necessary for the effective use of this manual is set forth below. We recommend that you first read through this preface so that you may use the manual most effectively depending on your experience in operating digital audio recorders.

Purpose of this manual

This manual contains all the information you need for the operation of the PCM-7010 Digital Audio Recorder, including the terminology used for various component parts, details of settings, and operating procedures. It also explains the DABK series of interface options. Furthermore, in case you have not used any DAT format tape, it has a section containing detailed information on the DAT format. Besides this operation manual, a maintenance manual (not supplied) will be available. Refer to the maintenance manual for information on the internal circuits and controls of the unit.

Organization of this manual

There follows a brief summary of the chapters of this manual. The opening page of each chapter also gives a summary and a list of the contents of that chapter.

Chapter 1. Overview

Describes the principal features of the unit, and introduces an application system, associated equipment and optional accessories.

Chapter 2. Location and Function of Parts and Controls

Briefly explains the functions of and how to use the parts and controls located on the front and rear panels as well as the information appearing on the display. For experienced users of a professional digital audio recorder, a reading of this chapter, in conjunction with occasional reference to the other chapters, should be sufficient to start using the unit.

Chapter 3. Preparations

Covers the connections, initial settings, and power supply arrangement to be carried out beforehand. Also gives precautions to be observed and describes the DAT cassette to be used.

Chapter 4. Recording and Playback

Deals with the procedures for basic operations such as the recording and playback of audio signals.

Chapter 5. Menu Operations

Shows how to use the menus to set various data, to change the factory-set setup data, or to follow up the detection of an error.

Chapter 6. Application Systems with Copying Capability

Describes how to connect the unit with other equipment, for example, digital audio equipment and a digital VTR to make up application systems capable of digital tape copying and provides precautions to be taken in forming and using such application systems.

Chapter 7. Warning Indicators and Error Messages

Explains the warning indicators and the error messages displayed.

Appendixes

Gives the principal specifications of the unit and the DAT format.

Intended audience for this manual

The PCM-7010 is designed for use principally at TV/radio broadcasting stations and post-production houses. This operation manual therefore assumes that the reader is more or less experienced in using broadcasting equipment.

If you are used to operating a DAT recorder or other broadcasting equipment, you will be able to use the unit, referring to appropriate sections of the manual as required after once reading through Chapter 2 "Location and Function of Parts and Controls". Regardless of experience, however, Chapter 1 "Overview" is essential reading, to ensure that you are aware of the features and functions of the unit. If you are using this type of digital audio recorder for the first time, or have limited experience in its use, we recommend that you read through the entire manual.

Complementary information

Complementary information such as the definitions of some relatively new technical terms used in this manual are given as footnotes.

Referred information

This manual tells you, in *italics*, where to find additional information.

Notes

Precautions to be taken in using the unit are provided where appropriate under the heading of **Notes**. Be sure to read them as well as those set forth in Section 3-1 "Precautions" (page 3-1) so that you can obtain optimum performance with the unit.

Index

In addition to the table of contents and the opening page of each chapter outlining the chapter contents, you can use the index at the end of this manual to quickly locate necessary information contained in the manual.

Chapter 1. Overview

This chapter will describe the principal features and functions of the PCM-7010 Digital Audio Recorder to give you an overview of the unit. An example of a digital audio editing system configured around the PCM-7010 will also be shown in this chapter. We recommend that you read through this chapter regardless of how well you are experienced in using audio recording systems for TV/radio broadcasting stations.

1-1. Principal Features	1-1
1-2. System Configuration Example	1-4
1-3. Recommended Equipment and Optional Accessories	1-5

1-1. Principal Features

1-1-1. General

The PCM-7010 is a digital audio recorder conforming to the DAT (digital audio tape) format. It has a wide range of functions designed to meet the requirements of applications at TV/radio broadcasting stations and production houses. You can expand or enhance its functions or the functions of a system configured around it by adding optional accessories.

1-1-2. Features

Synchronization function based on time code

The PCM-7010 can be locked to an external time code. Adding the DABK-7010 Time Code Reader/Generator option (needed to input/output time code), you can synchronize the PCM-7010 with video equipment.

Memory start function

The DABK-7012 Memory Start option installed in the PCM-7010 makes it possible for you to start hearing sound at the instant you press the PLAY key (memory start). You can also use this function to cue the tape precisely and easily.

Simultaneous recording and playback

Equipped with a 4-head drum, the PCM-7010 can play back sound immediately after recording — RAW (Read After Write) function. Therefore, while you record sound, you can monitor its playback.

Recording and reproduction of time code

The tape used for the PCM-7010 has subcode areas where you can record or read SMPTE/EBU time code.

Compatibility with consumer DAT recorders

Since the basic PCM-7010 tape format is identical with that of consumer DAT recorders, the basic functions of the unit are compatible with those of all consumer DAT recorders.

ID function

The PCM-7010 has an ID code function peculiar to DATs. The use of a Start ID, for example, makes it possible to carry out a high-speed search operation.

Search functions

The PCM-7010 offers flexible search functions which include time code location, Start-ID location, and cuing (search performed while hearing the playback sound).

Adoption of shuttle dial

The PCM-7010 has a versatile shuttle dial. You can use it to perform dial menu operations to set or change the data to be displayed, to reproduce sound from the sound memory (DABK-7012, optional), or to cue the tape to a specific position.

Variable-speed playback

You can vary the playback speed arbitrarily within a range of ± 12.5 percent of normal playback speed.

Front loading

The loading port of the cassette compartment is located on the front panel, so that you can load and take out a cassette with ease. The cassette is visible through the port.

A wide range of interfaces for remote control

You can use any of the three types of interface for remote control: a 37-pin parallel remote connector, an 8-pin parallel remote connector, and an optional RS-232C computer interface connector.

Extensive options to realize diverse applications

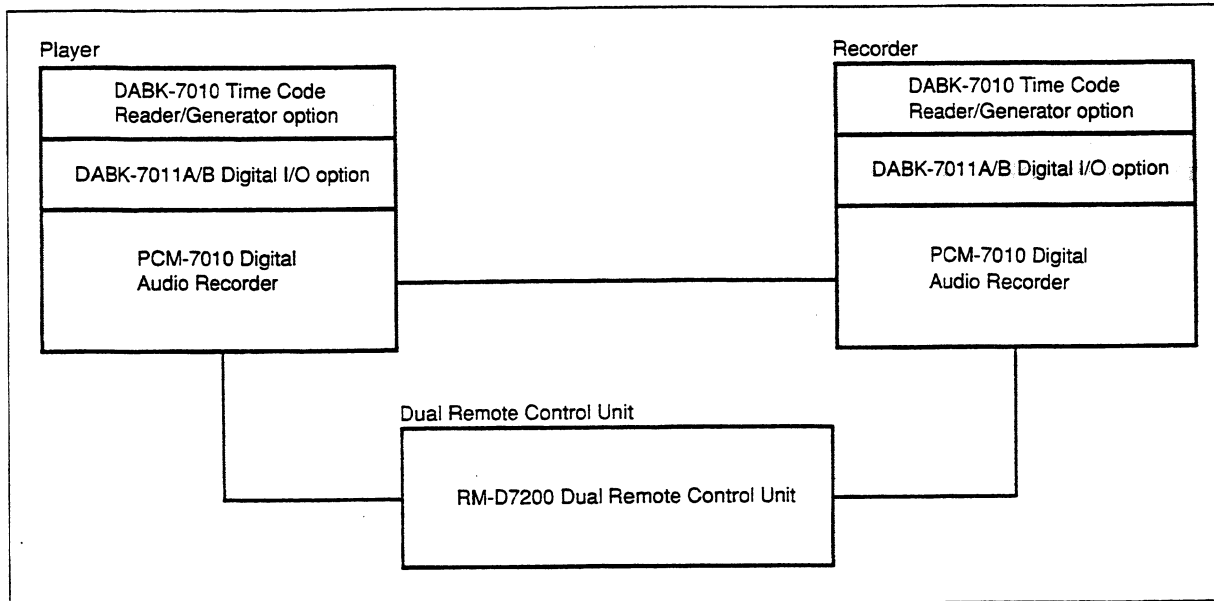
Extensive options including a variety of circuit boards are available so that you can set up a system capable of realizing a wide range of applications (such as a simple editing system for post production, a program transmission system at broadcast stations, etc.).

1-2. System Configuration Example

A simple digital audio editing system incorporating the PCM-7010 Digital Audio Recorder as a recorder, the PCM-7010 as a player, and the RM-D7200 Dual Remote Control Unit (scheduled to be released shortly) is shown below.

See Chapter 3 and subsequent sections on how to mount, connect, or use optional accessories.

For information on other equipment to be connected to the PCM-7010, refer to the operation and installation manuals for the equipment.



Configuration of a simple editing system

1-3. Recommended Equipment and Optional Accessories

PCM-7050 Digital Audio Recorder

The PCM-7050 is the high-grade model in the PCM-7000 series of digital audio recorders. You can connect it as a recorder to the PCM-7030 Digital Audio Recorder when the PCM-7030 is used as a player in a digital audio editing system.

PCM-7030 Digital Audio Recorder

The PCM-7030 is the medium-grade model in the PCM-7000 series of digital audio recorders. You can connect it as a player to the PCM-7050 Digital Audio Recorder when the PCM-7050 is used as a recorder in a digital audio editing system. The PCM-7030 is equipped with the appropriate options to almost equal the PCM-7050 in performance.

RM-D7100 Remote Control Unit

This is a compact remote control unit connectable to the 37-pin parallel remote interface of any model of the PCM-7000 series digital audio recorders.

RM-D7200 Dual Remote Control Unit (Scheduled to be released shortly.)

This is a dual remote control unit connectable to the 37-pin parallel remote interface of any model of the PCM-7000 series digital audio recorders. You can also build a simplified editing system by connecting the RM-D7200 with a pair of PCM-7000 series Digital Audio Recorders.

DABK-7010 Time Code Reader/Generator option

The DABK-7010 consists of a circuit board and a connector panel which you can use in the PCM-7010 Digital Audio Recorder. When mounted with this option, the PCM-7010 can input or output SMPTE/EBU time code. The recording format of SMPTE/EBU time code is used worldwide as a standard time code recording format for professional DATs. This option also enables the PCM-7010 to operate in synchronization with other video equipment.

DABK-7011A/7011B Digital I/O option

This optional board is for the PCM-7010 Digital Audio Recorder. By installing this board, the PCM-7010 inputs/outputs the digital audio signal of the AES/EBU format or IEC958 (SPDIF) format. (In addition, the DABK-7011B can also input/output the digital audio signal in the SDIF-2 format.) This board also has the word sync input/output connectors to synchronize the PCM-7010 with other digital audio equipment.

DABK-7012 Memory Start option

This optional board is for the PCM-7010 Digital Audio Recorder. By installing this board, the PCM-7010 has the memory start function.

DABK-7013 Computer Interface (RS-232C) option (Scheduled to be released shortly.)

The DABK-7013 consists of a circuit board and a connector used to connect the PCM-7010 Digital Audio Recorder to a computer via the RS-232C computer interface. The PCM-7010 mounted with this option can be remote-controlled from a computer to perform automatic recording and playback.

RMM-30 Rack Mount Rail

A pair of rack mount rails used to mount the PCM-7000 series digital audio recorder on a 19-inch EIA standard rack.

RMM-31 Rack Mount Adapter

A pair of handles attached to the PCM-7000 series digital audio recorder to be mounted on a 19-inch EIA standard rack.

DT-46R (46 min.), DT-60R (60 min.), DT-90R (90 min.), DT-120R (120 min.) Digital Audio Tape

DAT format cassette tapes

DT-10CL Cleaning Tape

Used to clean the heads.

Chapter 2. Location and Function of Parts and Controls

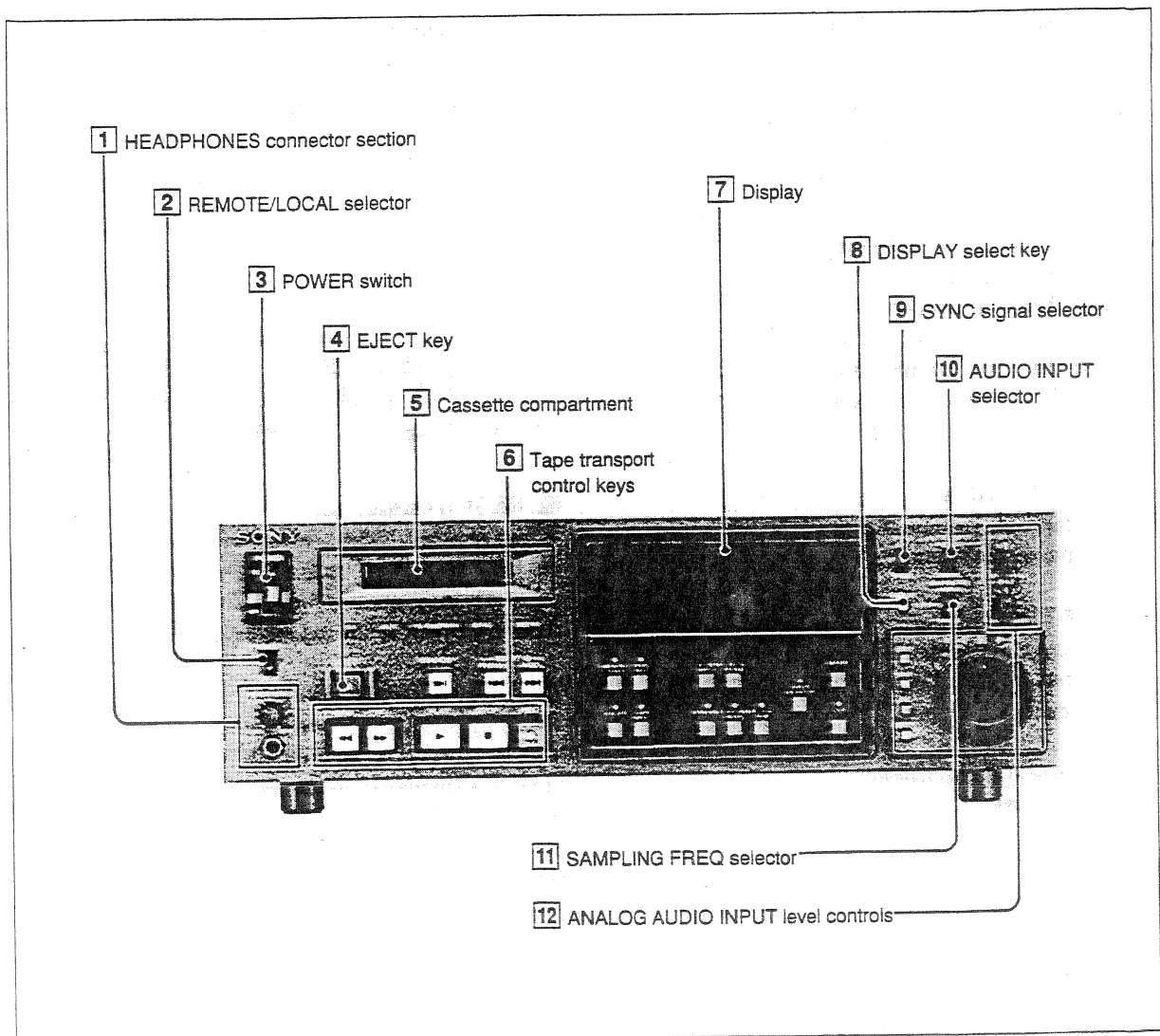
This chapter briefly explains the functions of and how to use the parts and controls located on the front and rear panels of the PCM-7010 Digital Audio Recorder and the information that may appear on its display area.

If you are used to operating broadcasting equipment, you will be able to start using the unit after reading this chapter. If you have not used any digital audio recorder, read through this chapter to grasp an outline of the unit and familiarize yourself with the names of its parts and controls.

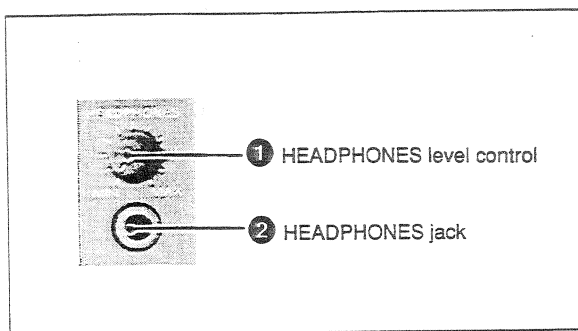
Subsequently, you can refer to this chapter to make sure of the available functions.

2-1. Front Panel	2-1
2-2. Display	2-8
2-3. Connector Panel (Rear)	2-13

2-1. Front Panel



1 HEADPHONES connector section



1 HEADPHONES level control

Adjusts the sound volume of the stereo headphones connected to the HEADPHONES jack 2.

2 HEADPHONES jack

Accepts a pair of stereo headphones.

[2] REMOTE/LOCAL selector

Set this selector to control the unit remotely or locally.

LOCAL: You can control the unit using the keys on the front panel. It is also possible to control the unit from the equipment connected to the REMOTE (8P) and REMOTE (37P) connectors located on the connector panel.

REMOTE: You can control the unit only from the controller, such as a computer, connected to the RS-232C connector (DABK-7013 RS-232C Interface option scheduled to be released shortly) on the connector panel.

[3] POWER switch

ON: Turns on the main power of the unit.

OFF: Turns off the main power of the unit.

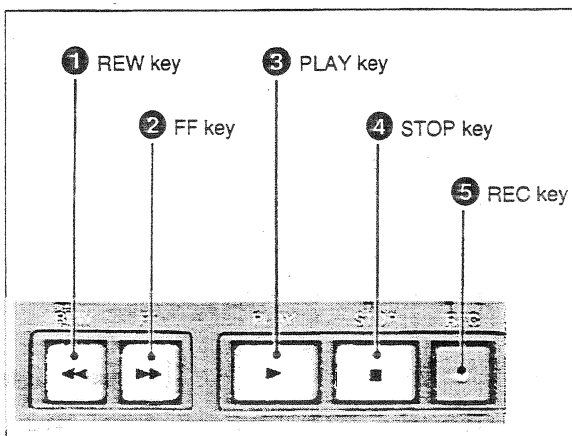
[4] EJECT key

Press to eject the cassette from the cassette compartment [5]. This key stays lit while the cassette is being ejected.

[5] Cassette compartment

Insert a cassette.

[6] Tape transport control keys



① REW (rewind) key

When pressed, lights and causes the tape to be rewound rapidly. If a time code is recorded on the tape, it is displayed in the tape time display area of the display while the tape is being rewound.

② FF (fast forward) key

When pressed, lights and causes the tape to be wound rapidly. If a time code is recorded on the tape, it is displayed in the tape time display area of the display while the tape is being wound.

③ PLAY key

When pressed, lights and causes playback to start.

④ STOP key

When pressed, lights and causes the running tape to stop. This key takes priority over all other tape transport control keys.

⑤ REC (record) key

When pressed together with the PLAY key ③, lights and causes recording to start. The PLAY key also stays lit during recording.

7 Display

Displays information such as time codes, audio signal levels, and various settings.

See Section 2-2 "Display" (page 2-8) for more information.

8 DISPLAY select key

Use this key to change the DISPLAY key menu selection. Every time you press this key, the data shown in the input/set data display area of the display changes.

See Section 5-2 "DISPLAY Key Menu Operations" (page 5-13) for more information.

9 SYNC signal selector

Selects a synchronizing signal (synchronization mode).

EXT: External synchronization (word sync) mode is selected. In this mode, the word synchronizing (sync) signal input to the WORD SYNC INPUT connector (DABK-7011A/7011B Digital I/O option), the digital audio signal (called the D-I sync signal in this manual) input to the DIGITAL INPUT connector (DABK-7011A/7011B Digital I/O option) or the digital audio signal (D-I sync signal) in the IEC 958 format input to the IEC(958) INPUT connector on the connector panel (DABK-7011A/7011B Digital I/O option) is used as the reference signal.

INT: Internal synchronization mode is selected. In this mode, the internal master clock is used as the reference signal.

VIDEO: External video synchronization mode is selected. In this mode, the video synchronizing (sync) signal input to the REF VIDEO INPUT connector (DABK-7010 Time Code Reader/Generator option) is used as the reference signal.

If no external synchronizing signal is input while this selector is set to EXT or VIDEO, the internal master clock is selected automatically.

10 AUDIO INPUT selector

Selects analog or digital audio input signals.

ANALOG: Analog audio input signals are selected.

DIGITAL: Digital audio input signals are selected.

11 SAMPLING FREQ (frequency) selector

Sets the sampling frequency for recording.

44.1kHz: The sampling frequency is set to 44.1 kHz.

32kHz: The sampling frequency is set to 32kHz.

48kHz: The sampling frequency is set to 48 kHz.

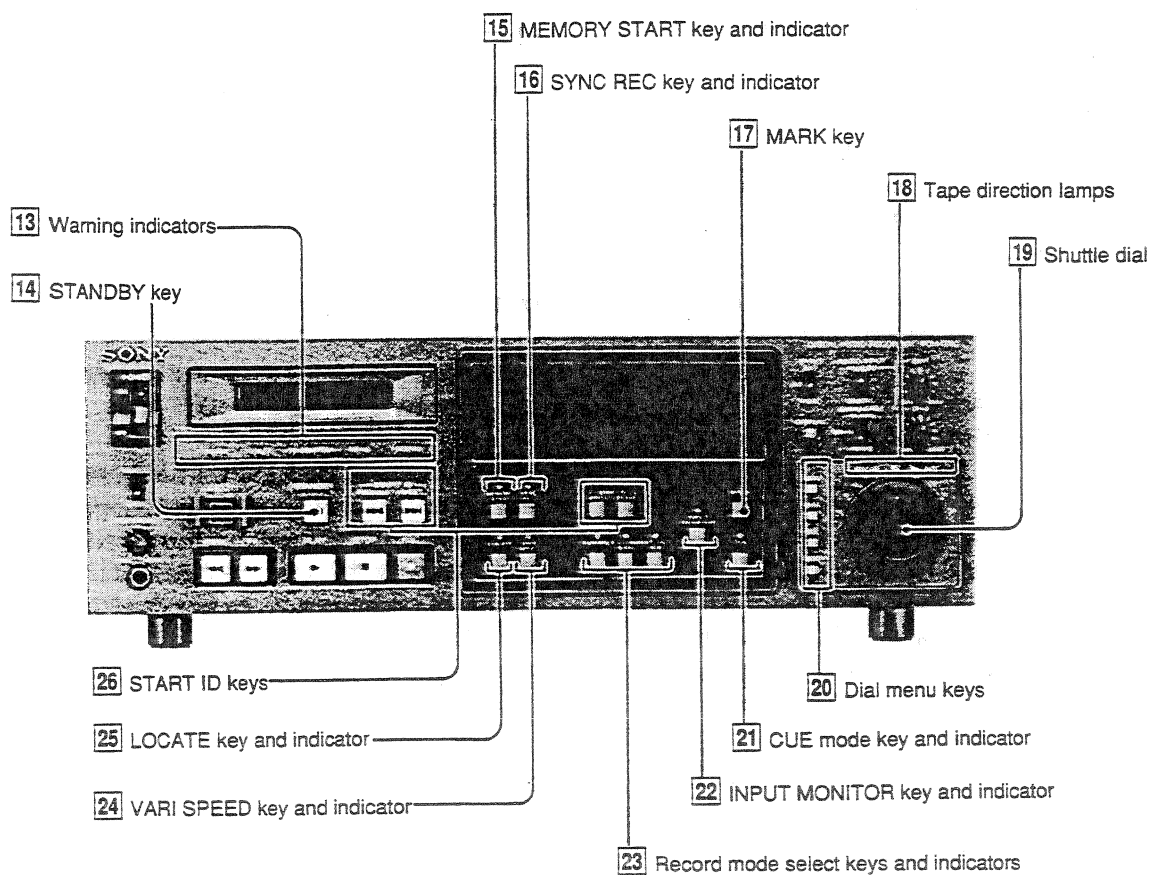
When using a recorded tape, set the sampling frequency given by the tape ID.

12 ANALOG AUDIO INPUT level controls

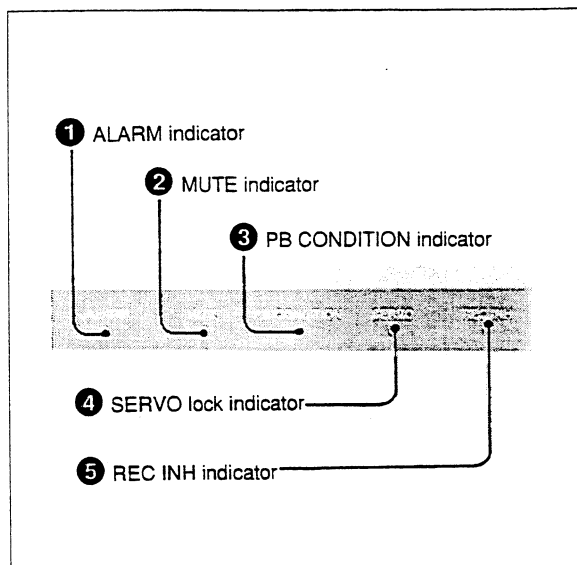
Adjust the levels of the analog audio input signals for channel 1 and channel 2, when the AUDIO INPUT selector **10** is set to ANALOG. The center position of each control corresponds to the reference level.

CH-1: Adjusts the level of channel 1.

CH-2: Adjusts the level of channel 2.



13 Warning indicators



1 ALARM indicator (red)

When an error is detected, this indicator lights and the corresponding error number appears on the display. If the error is a serious one, the tape will stop running.

See Section 7-1-2 "When the ALARM Indicator Comes on" (page 7-1) for more information.

2 MUTE indicator (red)

Lights if playback is muted due to poor playback conditions.

3 PB (playback) CONDITION indicator (yellow)

Lights if the error rate goes high due to poor playback conditions. If this indicator lights, inspect the tape as well as the tape transport section of the unit.

Using a dial menu, you can change the conditions under which this indicator lights.

See the section on "Pb cond (PB CONDITION)" (page 5-80) in "5-3-2 Setup Menu".

4 SERVO lock indicator (green)

Lights when the servo system is locked.

5 REC INH (record inhibit) indicator (yellow)

Lights when a cassette with its hole open (record inhibit setting) is loaded in the cassette compartment.

14 STANDBY key

When pressed while its light is off, lights and causes the unit to go into the STANDBY ON state (the head drum rotates while the tape stops). The unit can start playback more quickly in the STANDBY ON state than in the STANDBY OFF state. If you leave the unit in the STANDBY ON state, the state will automatically go off after about 3 minutes, causing this key light to go out and the drum to stop rotating. If you want to enter the STANDBY ON state again, press the key again.

15 MEMORY START key and indicator (when a DABK-7012 is installed)

Used to store the initial portion of sound to be played back on the sound memory, so that you can start playing back instantaneously (memory start).

See Section 4-3-2 "Outputting Playback Signals Immediately after Pressing the PLAY key — Memory Start Function" (page 4-29) for the procedure for making a memory start.

16 SYNC REC (sync recording) key and indicator

When the key is pressed, the indicator lights and the unit goes into the sync recording (insert recording by punch-in/punch-out) mode. While the light is on, any recording mode (assemble, insert audio, and insert subcode) can be selected. While the light is off, the unit enters the normal recording mode. (In this case, the insert audio mode cannot be selected.)

Factory-set position is ON.

The setting is saved when you turn the power off.

17 MARK key

Has the following two functions:

- Setting a locate point
When this key is pressed, the time code currently displayed in the tape time display area is set as a locate point and it appears in the input/set data display area.
- Setting a playback starting point when making a memory start (when a DABK-7012 Memory Start option is installed)

18 Tape direction lamps

These lamps indicate the direction of the tape running in CUE mode.

REV ◀: Lights green when the tape is run backward.

◻: Lights yellow when the tape is temporarily stopped (pause). After about 10 seconds, the unit automatically releases the tape from the pause so as not to damage the tape.

FWD ▶: Lights green when the tape is run forward.

19 Shuttle dial

Use this dial for two operations: dial menu setting and cueing.

20 Dial menu keys

Use these four keys (MENU, DATA, SET, and RESET keys) together with the shuttle dial **19** to set various modes or to change the information to be displayed.

See Chapter 5 "Menu Operations" for more information.

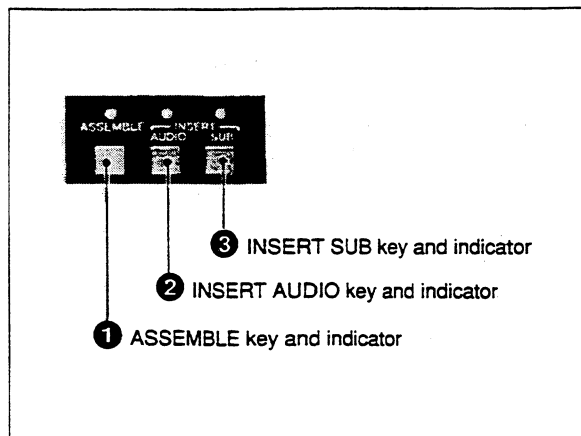
21 CUE mode key and indicator

Pressing this key causes the indicator to light and the shuttle dial **19** go into CUE mode. Turning the shuttle dial in CUE mode causes the tape speed to vary, according to the angle and direction of search dial rotation. The tape speed varies in 5 stages ranging from $\frac{1}{2}$ the normal speed to 8 times the normal speed in either direction. Since you can listen to the playback sound while adjusting the tape speed, you can locate (cue) the tape to a desired position efficiently.

22 INPUT MONITOR key and indicator

Use this key to switch the audio output signal selection between the playback signal and the input signal.

23 Record mode select keys and indicators



Use these keys to select a record mode. When you press any of these keys, the unit enters the corresponding record mode and the corresponding indicator lights. When none of these indicators is lit, you cannot record.

1 ASSEMBLE key and indicator

When this key is pressed, the indicator lights and the unit goes into ASSEMBLE mode. In ASSEMBLE mode, you can record audio signals as well as subcode data (Start ID, time code, etc.).

2 INSERT AUDIO key and indicator

When the key is pressed, the indicator lights and the unit goes into INSERT AUDIO mode. In INSERT AUDIO mode, you can record only the audio signals (for insertion) on a tape.

3 INSERT SUB (subcode) key and indicator

When this key is pressed, the indicator lights and the unit goes into INSERT SUB mode. In INSERT SUB mode, you can record only the subcode data (for insertion) on a tape.

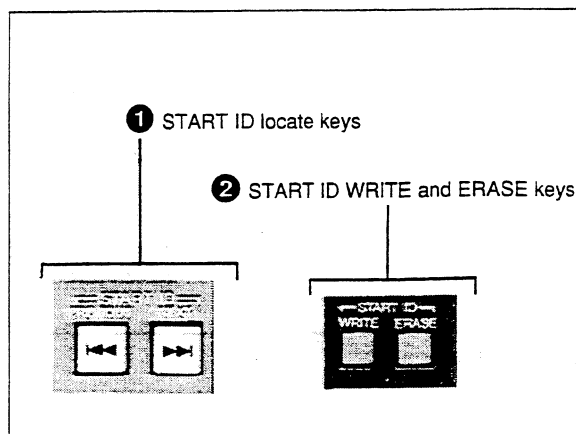
[24] VARI (variable) SPEED key and indicator

Press this key to enter VARI SPEED playback mode. When the unit enters VARI SPEED playback mode, the indicator lights and you can then carry out variable-speed playback using the shuttle dial [19] to vary the playback speed. To reset the mode, press this key again.

[25] LOCATE (time code locate) key and indicator

Pressing this key causes the indicator to light and the tape to run to the position corresponding to the time code displayed in the input/set data display area of the display.

[26] START ID keys



① START ID locate keys

Use these keys to run the tape to the next or last Start ID.

NEXT: Every time this key is pressed, the tape advances to the next Start ID rapidly. While the tape is being advanced, the LOCATE indicator [25] stays lit.

PREVIOUS: Every time this key is pressed, the tape is rewound to the last Start ID rapidly. While the tape is being rewound, the LOCATE indicator [25] stays lit.

② START ID WRITE and ERASE keys

Use these keys to write a Start ID as subcode data or to erase such a Start ID.

WRITE: Press this key to write a Start ID lasting 9 seconds in ASSEMBLE or INSERT SUB mode.

ERASE: Press this key to rewind the tape to the last Start ID and erase it in INSERT SUB mode.

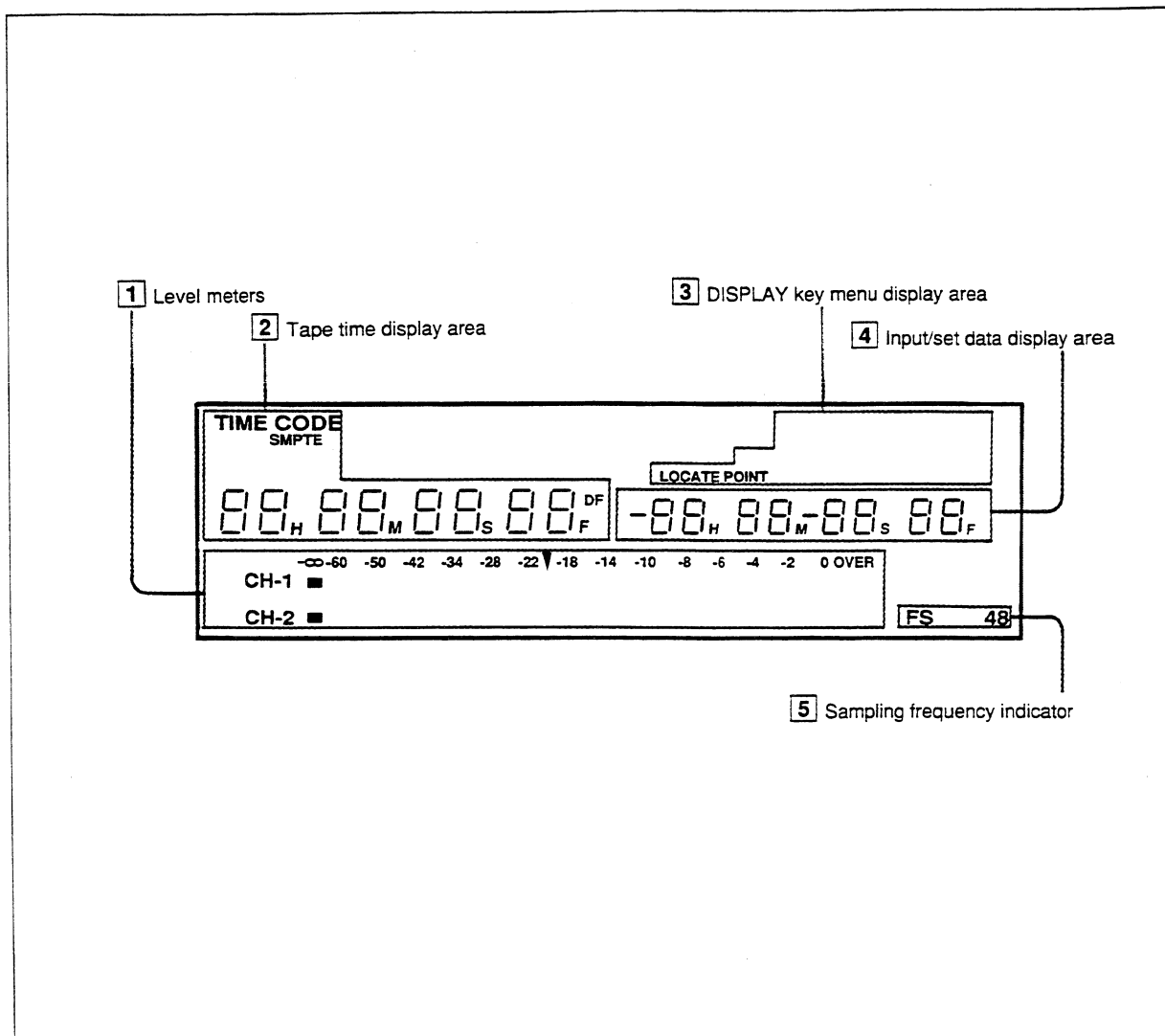
2-2. Display

While the unit is on, the display shows information relevant to the current state of the unit. Refer to this section as required.

When you turn on the unit, the display will show initializing information for several seconds. Upon initialization, the basic display showing the factory settings will appear.

The following explains the basic display and the next section explains the “whole display” which covers all information that may be displayed.

Basic display



Basic display

1 Level meters

Indicate the audio signal levels.

2 Tape time display area

Shows the tape time or error messages. When the tape time displays, type of tape time (time code, absolute time, or counter time) is also indicated. As the time code that may be displayed in this area, the SMPTE time code (drop frame mode) has been factory selected for the model for the USA and Canada, and the EBU time code for the model for European countries. The type indication displayed for the SMPTE time code, drop frame mode, is "DF", and non-drop frame mode is indicated as "NDF".

3 DISPLAY key menu display area

Shows the DISPLAY key menu selection. The initial selection is "LOCATE POINT". To change the selection, use the DISPLAY select key.

4 Input/set data display area

Shows the data corresponding to the current DISPLAY key menu selection.

5 Sampling frequency indicator

Shows the sampling frequency (32 kHz, 44.1 kHz or 48 kHz).

Figures and alphabet shown in the display

Figures and characters (alphabet) appear as shown below in the tape time display area and input/set data display area.

Figure	1	2	3	4	5	6	7	8	9	0
Indication	1	2	3	4	5	6	7	8	9	0

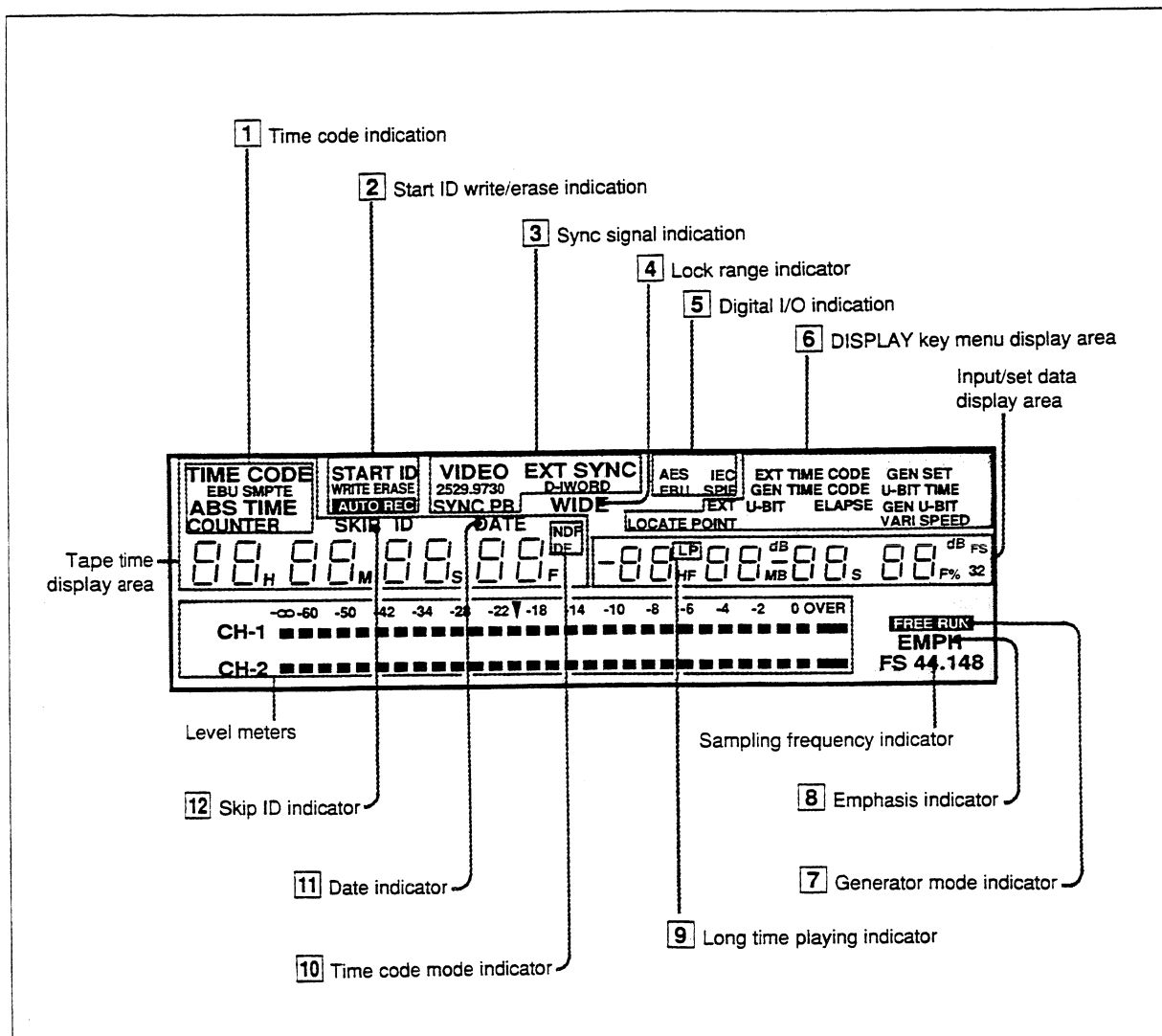
Alphabet	A	B	C	D	E	F	G	H	I	J	K*	L	M*	N
Indication	A	b	c	d	E	F	G	H	I	J		L		n

Alphabet	O	P	Q	R	S	T	U	V*	W*	X*	Y	Z*
Indication	o	P	q	r	S	t	U				Y	

* This character does not appear.

Whole display

This section explains all the information that may appear in the display. (The information not included in the basic display mostly appears to indicate the results of control or operation performed on the unit. There cannot be a case in which all the information explained is displayed at a time.)



Whole display

1 Time code indication

TIME CODE: When a time code is recorded or reproduced, this indicator lights along with displaying "SMPTE" or "EBU" depending on the type of time code used.

See the section on "tc bASE (time code base)" (page 5-45) in Section 5-3-2 "Setup Menu" for the "ABS TIME" and "COUNTER" settings and indications.

2 Start ID write/erase indication

START ID WRITE: This indication appears when a Start ID is written to a tape.

START ID ERASE: This indication appears when a Start ID is erased from a tape.

AUTO REC: This indication appears when the automatic Start-ID writing mode is set for ASSEMBLE recording.

See the section on "S-id Auto (START ID AUTO REC)" (page 5-64) in Section 5-3-2 "Setup Menu" for the procedure on setting the automatic Start-ID writing mode.

When a Start ID is read from a tape during playback, "START ID" appears.

3 Sync signal indication

VIDEO: When the unit goes into the mode for video synchronization (when the SYNC signal selector is set to VIDEO, when a DABK-7010 is installed), this indication appears along with the frequency display "25", "29.97", or "30".

SYNC PB: This indication appears when playback is carried out under the following conditions:

- 1) The time code format is other than Film.
- 2) A video sync signal is input to the REF VIDEO INPUT connector (DABK-7010 Time Code Reader/Generator option) on the connector panel.
- 3) The setup menu "SYNC PB" is set to "ENABLE" to lock the off-tape time code and the input video sync signal in phase.

See the section on "SYncPb (SYNC PB)" (page 5-68) in Section 5-3-2 "Setup Menu".

EXT SYNC: When the unit goes into the mode for external synchronization (when the SYNC signal selector is set to EXT, when a DABK-7011A/7011B is installed), this indication appears along with the display "D-I" (for a D-I sync signal in the AES/EBU format) or "WORD" (for a word sync signal) depending on the type of synchronizing signal used.

4 Lock range indicator

Indicates "WIDE" when the wide range is selected for external synchronization. (You do this by setting the setup menu "SYNC NARROW" to "OFF".) The factory setting of "SYNC NARROW" is "ON".

See the section on "SYnc nrr (SYNC NARROW)" (page 5-52) in Section 5-3-2 "Setup Menu".

5 Digital I/O indication

When the DABK-7011A/7011B digital I/O option is installed, this indicator displays "AES/EBU", "IEC", or "SDIF" (for DABK-7011B only) depending on the switch setting and the setting of the dial menu.

6 DISPLAY key menu display area

Every time you press the DISPLAY key on the front panel, the DISPLAY key menu in the input/set data display area changes. The menus displayed and their functions are as follows:

See Section 5-2 "DISPLAY Key Menu Operations" (page 5-13) for more detailed information.

LOCATE POINT: This menu shows a locate point data.

ELAPSE: This menu shows the tape running time.

U-BIT: This menu shows the user bit data read from the tape.

EXT TIME CODE: This menu shows the external time code being input.

EXT U-BIT: This menu shows the external user bit data being input.

GEN TIME CODE: This menu shows the time code generated by the built-in time code generator.

GEN U-BIT: This menu shows the user bit data generated by the built-in time code generator.

GEN SET TIME: This menu shows the initial value of the time code to be generated by the built-in time code generator.

GEN SET U-BIT: This menu shows the user bit data to be generated by the built-in time code generator.

VARI SPEED: This menu shows the tape speed for variable-speed playback (VARI-SPEED mode).

7 Generator mode indicator

Displays "FREE RUN" when the generator mode is set to FREE RUN. (You do this by setting the setup menu "FREE RUN" to "ON".) The factory setting of "FREE RUN" is "OFF" (REC RUN).

8 Emphasis indicator

Displays "EMPH" while de-emphasis circuitry is being activated.

9 Long time playing indicator

Displays "LP" when the unit plays the tape recorded in long time playing mode.

10 Time code mode indicator

When the SMPTE time code is used, this indicator displays "NDF" (for non-drop frame mode) or "DF" (for drop frame mode) depending on the mode of time code used. The factory setting is the drop frame mode. You can change the setting using a setup menu.

See the section on "rEF tCF (REFERENCE TIME CODE FORMAT)" (page 5-00) in Section 5-3-2 "Setup Menu" for the procedure for changing the settings.

11 Date indicator

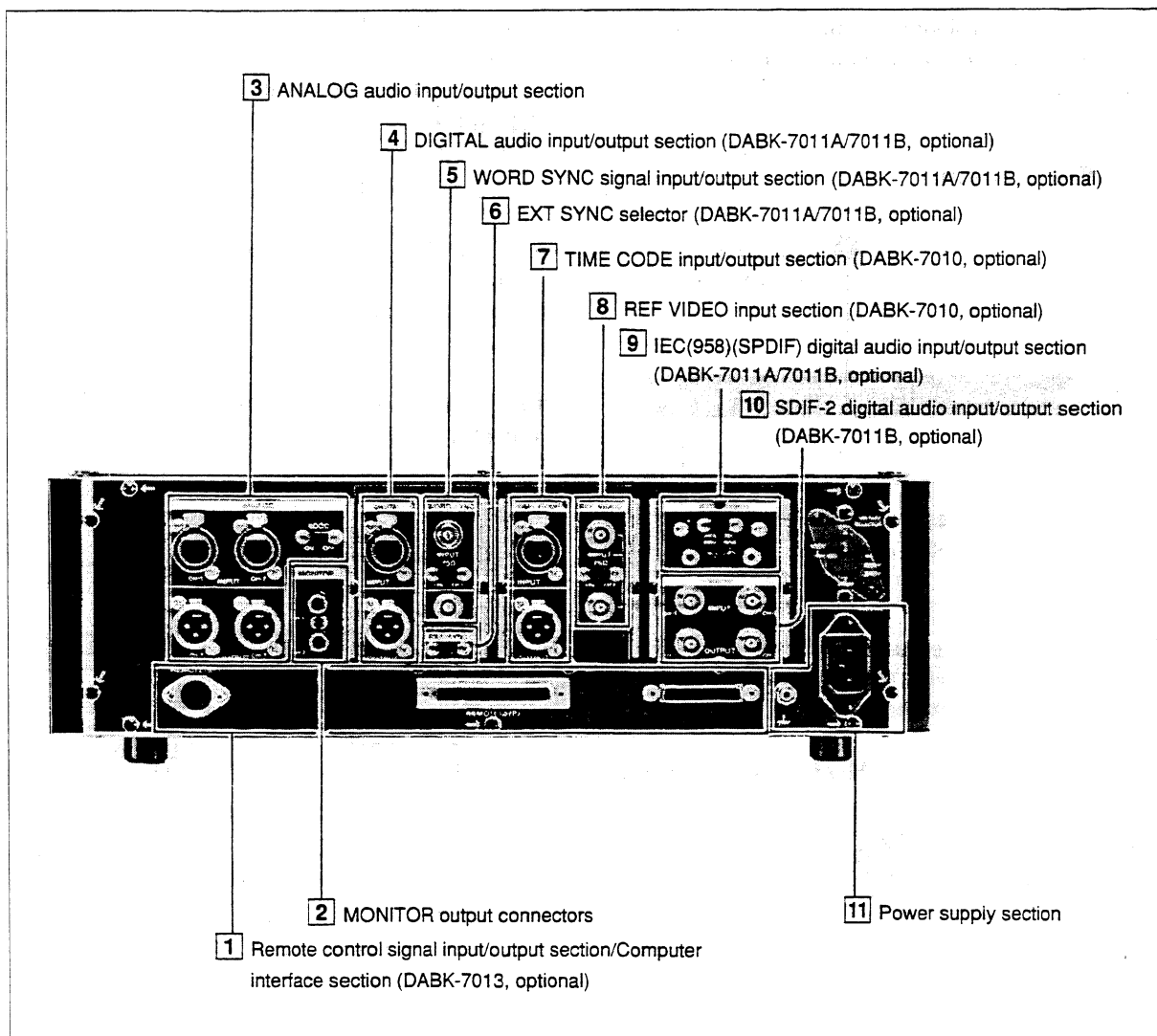
Displays "DATE" when the display indicates the time data of the internal clock or the time data recorded on the tape.

See the section on "dAtE AdJ (DATE ADJUST)" (page 5-82) in Section 5-3-2 "Setup Menu" for details.

12 Skip ID indicator

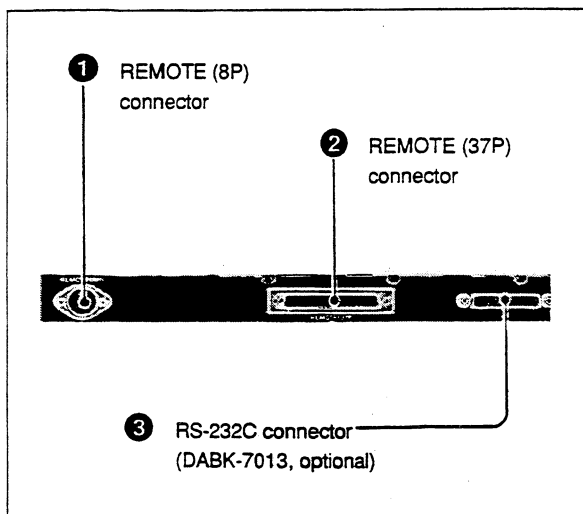
Displays "SKIP ID" when the unit finds the Skip ID recorded on the tape.

2-3. Connector Panel (Rear)



Connector panel mounted with DABK-7010 Time Code Reader/Generator option,
DABK-7011B Digital I/O option and DABK-7013 RS-232C I/F option

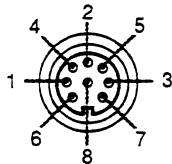
1 Remote control signal input/output section (supplied)/Computer interface section (DABK-7013, optional)



1 REMOTE (8P) connector (DIN 8-pin)

This is an 8-pin parallel remote signal connector for connecting, for example, a fader.

Pin assignment of the REMOTE (8P) connector



Pin number	Signal name
1	L-PLAY COMMAND IN*
2	L-STOP COMMAND IN
3	NC
4	L-PLAY STATUS OUT
5	L-STOP STATUS OUT
6	NC
7	+5V OUT
8	GND

* Can be changed to the PLAY/STOP COMMAND by changing the setting of "r-8Pin (REMOTE 8-PIN)" in the setup menu. For the method of changing the signal and other relevant information, contact a qualified Sony service technician.

For details, see the section on "r-8Pin (REMOTE 8-PIN)" (page 5-78) in Section 5-3-2 "Setup Menu".

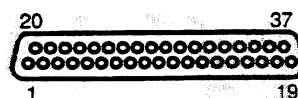
- The electrical specifications of the IN and OUT signals for this connector are the same as those of the IN and OUT signals for the REMOTE (37P) connector 2.

- The L-PLAY STATUS OUT signal for pin 4 and the L-STOP STATUS OUT signal for pin 5 are the same as the corresponding signals for the REMOTE (37P) connector 2.
- For the function of each signal, see "Description of Signals" in "2 REMOTE (37P) connector".

2 REMOTE (37P) connector (D-SUB 37-pin)

This is a 37-pin parallel remote signal connector for connecting a remote controller such as the RM-D7100 remote controller.

Pin assignment of the REMOTE (37P) connector



Pin number	Signal name	Pin number	Signal name
1	GND	20	GND
2	L-STOP STATUS OUT	21	L-STOP COMMAND IN
3	L-FF STATUS OUT	22	L-FF COMMAND IN
4	L-PLAY STATUS OUT	23	L-PLAY COMMAND IN
5	L-REW STATUS OUT	24	L-REW COMMAND IN
6	L-STANDBY STATUS OUT	25	L-STANDBY COMMAND IN
7	L-INPUT MONITOR STATUS OUT	26	L-INPUT MONITOR COMMAND IN
8	L-REC STATUS OUT	27	L-REC COMMAND IN
9	L-ID SEARCH STATUS OUT	28	L-ID NEXT COMMAND IN
10		29	L-ID PREVIOUS COMMAND IN
11	L-START ID STATUS OUT	30	L-START ID WRITE COMMAND IN
12	L-SKIP ID STATUS OUT	31	L-SKIP ID WRITE COMMAND IN
13	L-END ID STATUS OUT	32	L-END ID WRITE COMMAND IN
14	L-ALARM STATUS OUT	33	L-CHASE COMMAND IN
15	L-REVERSE COMMAND IN	34	
16	TAPE SPEED A COMMAND IN	35	
17	TAPE SPEED B COMMAND IN	36	L-EXT SOURCE SEL IN
18	L-SERVO LOCK ON STATUS OUT	37	EXT SOURCE (9.6 kHz \pm 12.5%) IN
19	+5V OUT		

Output L: 0.8 V or less (I max. \leq 50 mA)

H: Open collector (+5 V, 10 kilohm resistor pull-up)

Input L: 1.5 V or less, 50 msec. or more

H: 3.5 V or more, 5.25 V or less

+5 V output: 0.4 A max.

The signals input to pin numbers 15, 16, 17 and 36 are HIGH or LOW. The signals input to or output from other pins are pulse signals.

Description of signals

The functions of the signals are as follows:

STOP: Stops the tape transport.

FF: Advances the tape rapidly.

PLAY: Plays back the tape.

REW: Rewinds the tape rapidly.

STANDBY: Keeps the head drum rotating while the tape is stopped.

INPUT MONITOR: Outputs the input audio signal instead of the playback signal.

REC: When issued together with the PLAY signal (by pressing the REC key and the PLAY key at a time), starts recording.

ID NEXT: Issued every time the START ID NEXT key is pressed and runs the tape to the next Start ID. For example, if you press the key 3 times in succession, the tape advances to the third ID counted from the current tape position.

ID PREVIOUS: Issued every time the START ID PREVIOUS key is pressed and rewinds the tape to the last Start ID. For example, if you press the key 3 times in succession, the tape rewinds to the third last Start ID counted from the current tape position.

ID SEARCH STATUS: Indicates that an ID or time code locate is being carried out. If the operation is for locating the next ID, the FF status signal is also issued. If it is for locating the last ID, the REW status signal is also issued.

START ID: Acts as a command to write a Start ID and also as a playback status signal.

SKIP ID: Acts as a command to write a Skip ID and also as a playback status signal.

END ID: Acts as a command to write an End ID and also as a playback status signal.

REVERSE, TAPE SPEED A, TAPE SPEED B: Control the tape speed for cuing. See "Tape speed control" set forth below. For status indication, the STOP + FF signal and the STOP + REW signal are used.

SERVO LOCK: Indicates the servo-locked status.

EXT SOURCE SEL: Activates the EXT SOURCE signal to control the playback speed in VARI-SPEED mode using an external synchronizer.

As long as this signal is kept at low level, the unit used as a recorder is controlled by the EXT SOURCE signal in VARI-SPEED mode.

EXT SOURCE: An external rectangular signal with a frequency of $9.6 \text{ kHz} \pm 12.5\%$ used to control the playback speed in VARI-SPEED mode.

ALARM: Outputs an alarm signal.

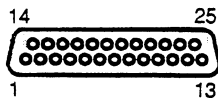
Tape speed control

The tape speed is determined by the combination of the L-REVERSE COMMAND IN signal for pin 15, TAPE SPEED A COMMAND IN signal for pin 16, and TAPE SPEED B COMMAND IN signal for pin 17 as indicated in the following table:

Pin 15 (REVERSE)	Pin 16 (SPEED A)	Pin 17 (SPEED B)	Tape speed
—	H	H	—
H	H	L	$\times 1$
H	L	H	$\times 3$
H	L	L	$\times 8$
L	H	L	$\times -1$
L	L	H	$\times -3$
L	L	L	$\times -8$

3 RS-232C connector (DABK-7013, optional)
Connect to a computer via an RS-232C computer interface.

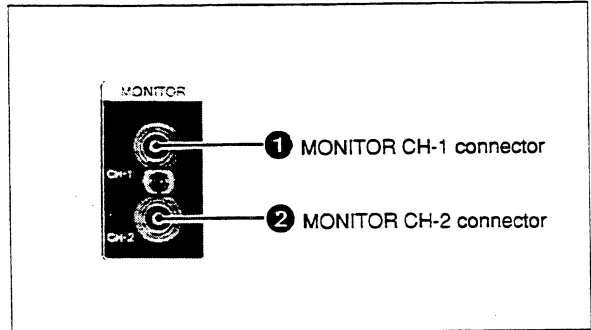
Pin assignment of the RS-232C connector and the corresponding input/output signals



Pin number	Signal symbol	Signal name	Signal direction
1	FG	FRAME GROUND	—
2	TXD	TRANSMIT DATA	PCM-7010 → External CPU
3	RXD	RECEIVE DATA	PCM-7010 ← External CPU
4	RTS	REQUEST TO SEND	PCM-7010 → External CPU
5	CTS	CLEAR TO SEND	PCM-7010 ← External CPU
6	DSR	DATA SET READY	PCM-7010 ← External CPU
20	DTR	DATA TERMINAL READY	PCM-7010 → External CPU
7	GND	SIGNAL GROUND	—

- All signals conform to the RS-232C standard.
- Their output levels are as follows:
ON: +5 V or more OFF: -5 V or less

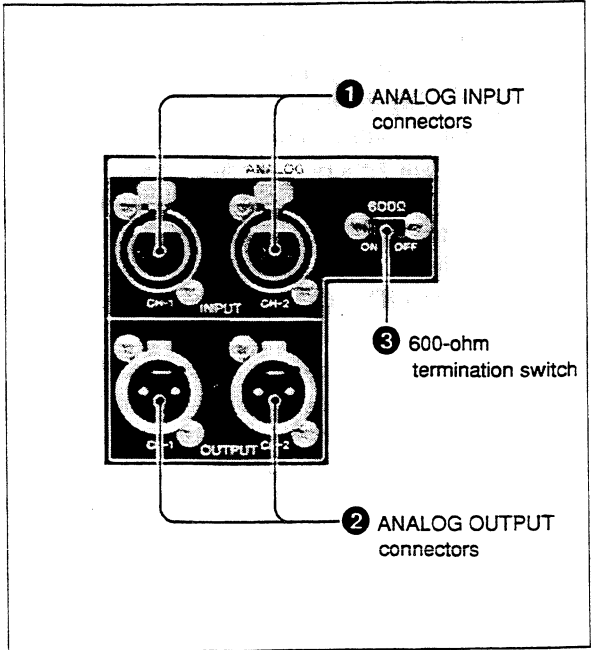
2 MONITOR output connectors



1 MONITOR CH-1 (monitor output channel-1) connector
Outputs the channel 1 analog audio signal (L) for monitoring. The output signal of this connector is the same as that of the ANALOG OUTPUT CH-1 connector **3 2**. It is an unbalanced output.

2 MONITOR CH-2 (monitor output channel-2) connector
Outputs the channel 2 analog audio signal (R) for monitoring. The output signal of this connector is the same as that of the ANALOG OUTPUT CH-2 connector **3 2**. It is an unbalanced output.

3 ANALOG audio input/output section



- 1 ANALOG INPUT (analog audio input) connectors (equivalent to XLR type)**
CH-1: Inputs the channel 1 analog audio signal (L).
CH-2: Inputs the channel 2 analog audio signal (R).
- 2 ANALOG OUTPUT (analog audio output) connectors (equivalent to XLR type)**
CH-1: Outputs the channel 1 analog audio signal (L).
CH-2: Outputs the channel 2 analog audio signal (R).

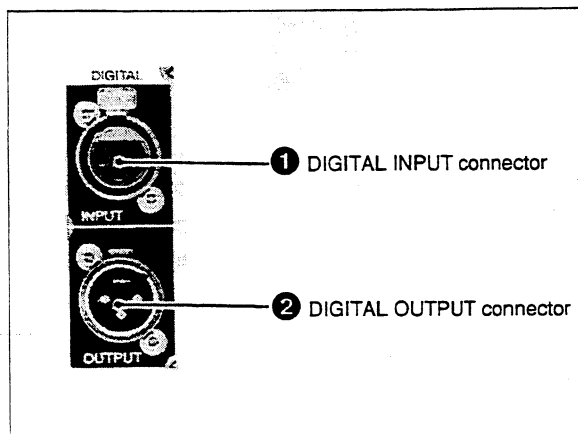
③ 600-ohm termination switch

Sets the input impedance to 600 ohms or 10 kilohms.

ON: The analog audio input signals are terminated in 600 ohms.

OFF: High input impedance (10 kilohms) is set.

④ DIGITAL audio input/output section (DABK-7011A/7011B, optional)



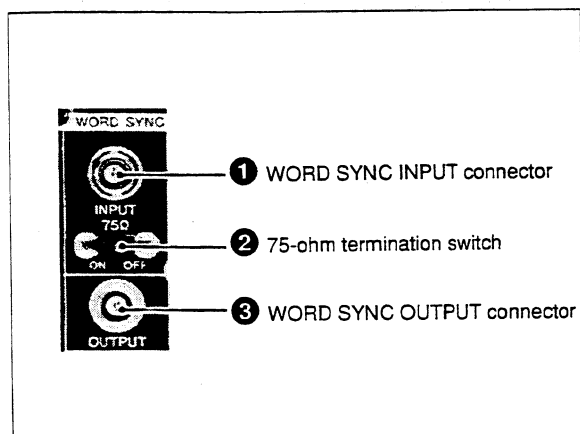
① DIGITAL INPUT (digital audio input) connector

Inputs digital audio signals in the AES/EBU format.

② DIGITAL OUTPUT (digital audio output) connector

Outputs digital audio signals in the AES/EBU format.

⑤ WORD SYNC signal input/output section (DABK-7011A/7011B, optional)



These connectors input or output a word sync signal to synchronize the unit with other digital audio equipment.

① WORD SYNC INPUT connector (BNC type)

Inputs an external word sync signal to synchronize the unit with other audio equipment.

② 75-ohm termination switch

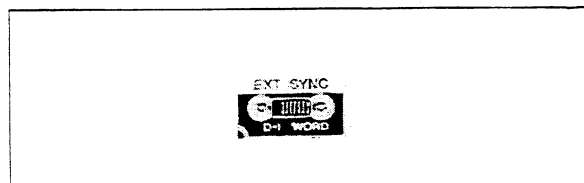
ON: The input word sync signal is terminated in 75 ohms.

OFF: High input impedance is set so that the external word sync signal may be looped through to other equipment.

③ WORD SYNC OUTPUT connector (BNC type)

Outputs the word sync signal of the unit to synchronize other audio equipment. When the EXT SYNC selector [6] is set to WORD in the external synchronization (word) mode, this connector directly outputs the signal input to the WORD SYNC INPUT connector.

⑥ EXT SYNC (external sync signal) selector (DABK-7011A/7011B, optional)

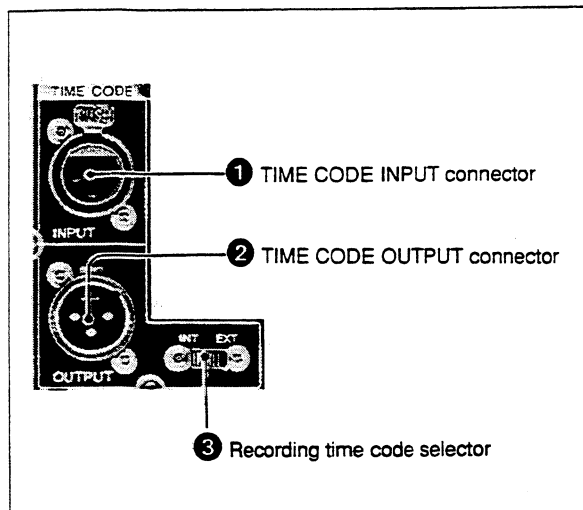


Selects the external synchronization signal to be used.

D-I (DIGITAL INPUT): The signal in the AES/EBU format (D-I sync signal) input to the DIGITAL INPUT connector [4] ① or the signal in the IEC958 format input to the IEC(958) INPUT connector [9] ② is selected.

WORD: The signal (word sync signal) input to the WORD SYNC INPUT connector [5] ① is selected.

7 TIME CODE input/output section (DABK-7010, optional)



These optional connectors input or output the SMPTE/EBU time code.

1 TIME CODE INPUT connector

Inputs the SMPTE/EBU time code.

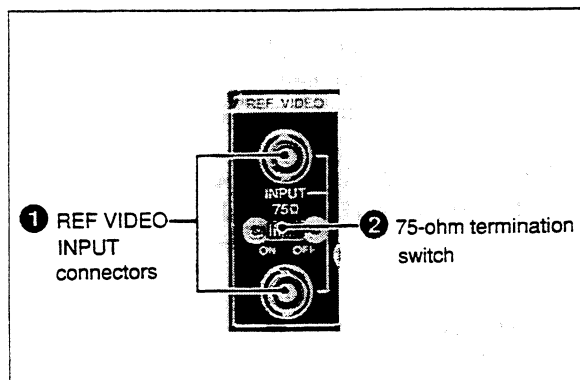
2 TIME CODE OUTPUT connector

Outputs the SMPTE/EBU time code.

Select the recording time code by using Dial Menu.

For details, see the section on "rEc tc (RECORD TIME CODE)" (page 5-49) in Section 5-3-2 "Setup Menu".

8 REF VIDEO (reference video signal) input section (DABK-7010, optional)



1 REF (reference) VIDEO INPUT connectors

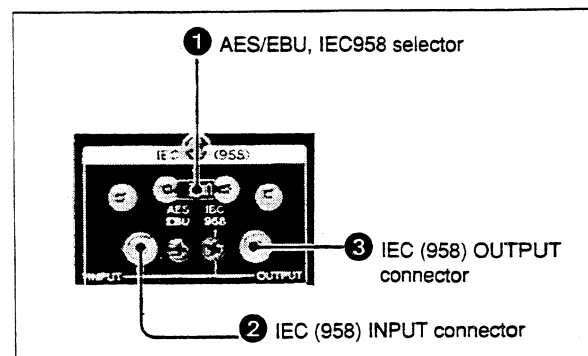
These are a pair of loop-through connectors which input a video sync signal used to synchronize the unit with video equipment.

2 75-ohm termination switch

ON: The input signal is terminated in 75 ohms.

OFF: High input impedance is set so that the input signal may be looped through the two connectors for connection to other equipment.

9 IEC(958)(SPDIF) digital audio input/output section (DABK-7011A/7011B, optional)



1 AES/EBU, IEC958 selector

While the EXT SYNC selector is set to D-I, this selector selects the format of the digital audio input/output signal for recording and playback and the format of the external sync signal (D-I sync signal).

AES/EBU: Selects the digital input/output signal for recording and playback in the AES/EBU format. The signal is input to/output from the DIGITAL INPUT/DIGITAL OUTPUT connectors on the rear panel. Also, selects the external sync signal in the AES/EBU format.

IEC958: Selects the digital input/output signal for recording and playback in the IEC958(SPDIF) format. The signal is input to/output from the IEC(958) INPUT/IEC(958) OUTPUT connectors on the rear panel. Also, selects the external sync signal in the IEC958(SPDIF) format. In this setting, "IEC" indicator appears on the display.

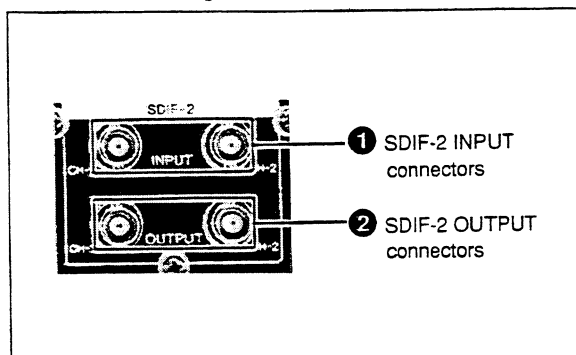
② IEC(958) INPUT connector

Inputs the digital audio signal in the IEC958(SPDIF) format.

③ IEC(958) OUTPUT connector

Outputs the digital audio signal in the IEC958(SPDIF) format.

⑩ SDIF-2 digital audio input/output section (DABK-7011B, optional)



When you select the digital audio input/output signal in the SDIF-2 format, "SDIF" indicator appears on the display.

① SDIF-2 INPUT connectors

Input the digital audio signal in the SDIF-2 format.

CH-1: Inputs the digital audio signal of channel 1 (left channel).

CH-2: Inputs the digital audio signal of channel 2 (right channel).

② SDIF-2 OUTPUT connectors

Output the digital audio signal in the SDIF-2 format.

CH-1: Outputs the digital audio signal of channel 1 (left channel).

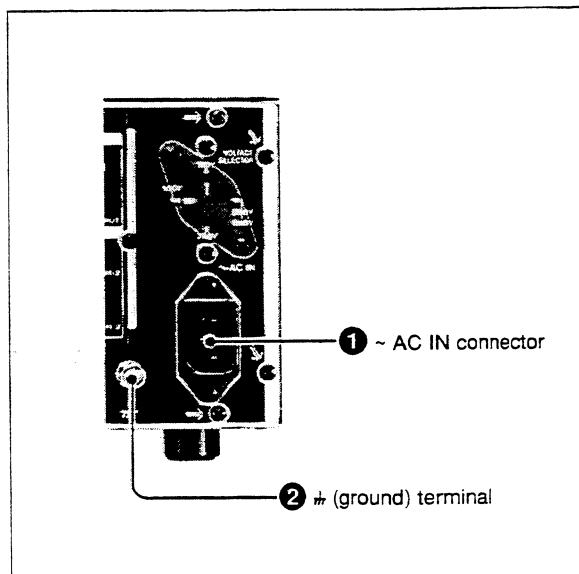
CH-2: Outputs the digital audio signal of channel 2 (right channel).

Note

This unit cannot synchronize with the digital audio signal input to the SDIF-2 INPUT connector.

See the section on "dio SEL(DIGITAL I/O SELECT)" (page 5-44) in Section 5-3-2 "Setup Menu" for the procedure for changing the settings.

⑪ Power supply section



① ~AC IN (AC power input) connector

Connect to an AC power source using the supplied AC power cord.

② ⏏ (ground) terminal

Connect a grounding wire.

Chapter 3. Preparations

This chapter describes the information and procedure needed before you start recording and playback. "Precautions" gives the safety measures to take before operating the PCM-7010, and "Configuration Examples" covers from the basic connections of the PCM-7010 itself to connecting the unit to other equipment which are mentioned in Section 1-2 "System Configuration Example" (page 1-4). "Initial Settings" explains the needed operating settings which don't require the resetting during normal operation.

3-1. Precautions	3-1
3-2. Configuration Examples	3-2
3-3. Initial Settings	3-12
3-4. Power Supply	3-17
3-5. About DAT Cassettes	3-20

3-1. Precautions

3-1-1. Use and Storage

Do not subject the unit to severe shocks; otherwise, the internal mechanism may be damaged, or the body distorted.

Use and Storage locations

Store in a level, ventilated place. Avoid using or storing the unit in the following places:

- Where it is subject to extreme of temperature.
- Very damp places.
- Places subject to severe vibration.
- Near strong magnetic fields.
- In direct sunlight for extended periods, or close to heating apparatus.

Replacement of Head Drum and Lithium Battery

The head drum and the lithium battery used in the unit need to be replaced. To see the accumulated operation time of the head drum, choose "Hour-t (HOUR-TIME)" of the Setup menu (page 5-42). When you replace the head drum, also replace the lithium battery for the internal clock.

For the replacement, refer to the maintenance manual of the PCM-7010 or consult qualified Sony personnel.

Notes on transportation

When transporting the unit on a cart or in a vehicle, set down the cassette compartment.

When setting the cassette compartment down without inserting the cassette in the compartment, press the EJECT key while holding down the STOP key, PLAY key, and STANDBY key simultaneously.

3-1-2. Condensation

If you move the unit suddenly from a very cold place to a warm place, or use it in a very damp location, condensation may form on the head drum. If the unit is operated in this state, the tape may adhere to the drum, and cause a failure or even permanent damage. Avoid operating the unit under the conditions described above.

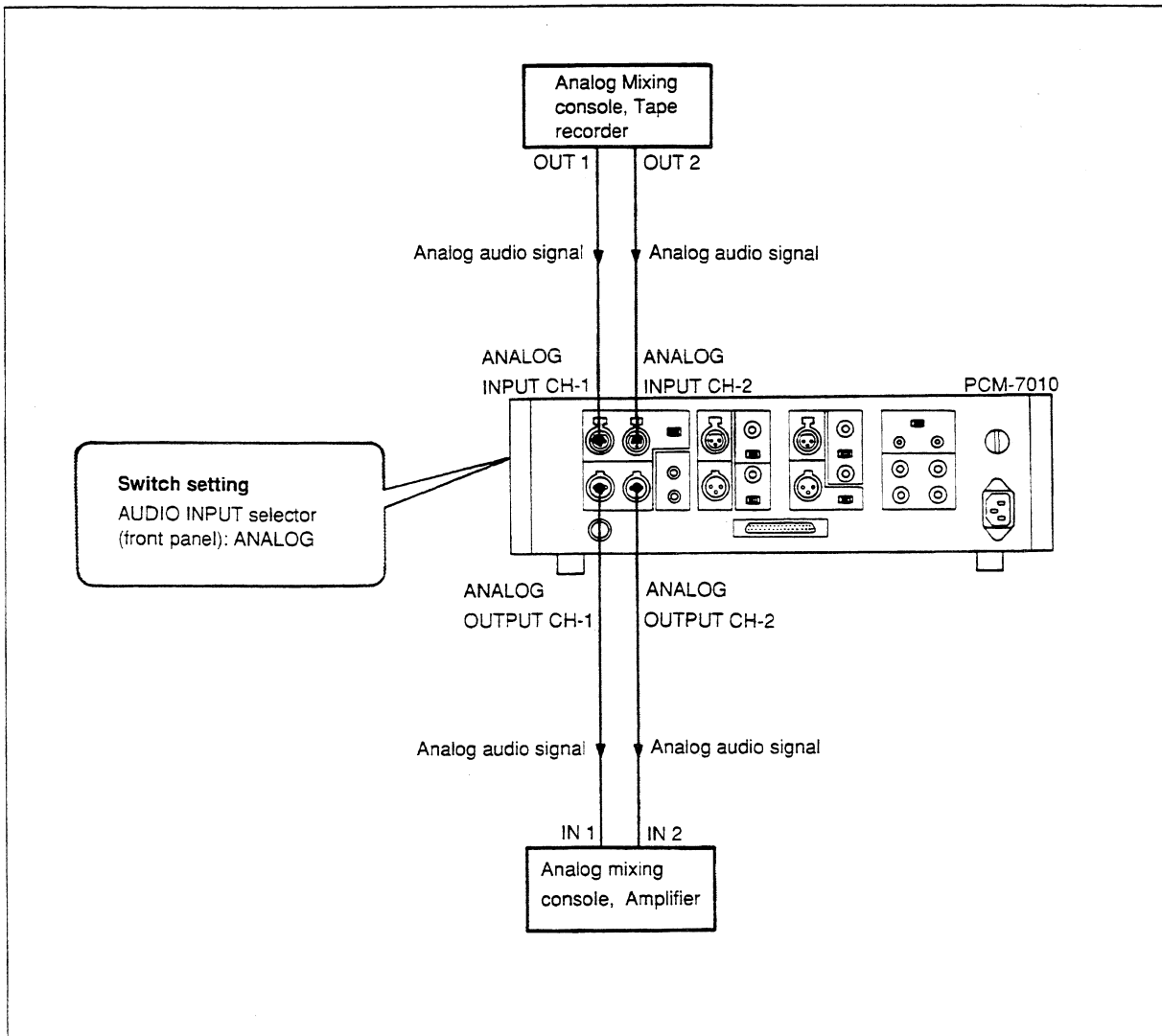
3-2. Configuration Examples

3-2-1. Precautions on Installation and Connections

- Before making any connections, be sure to turn the power of all equipment off.
- For details on connection and operation of each connected piece of equipment, refer to the installation and operation manual furnished with the equipment.

3-2-2. Basic Connections

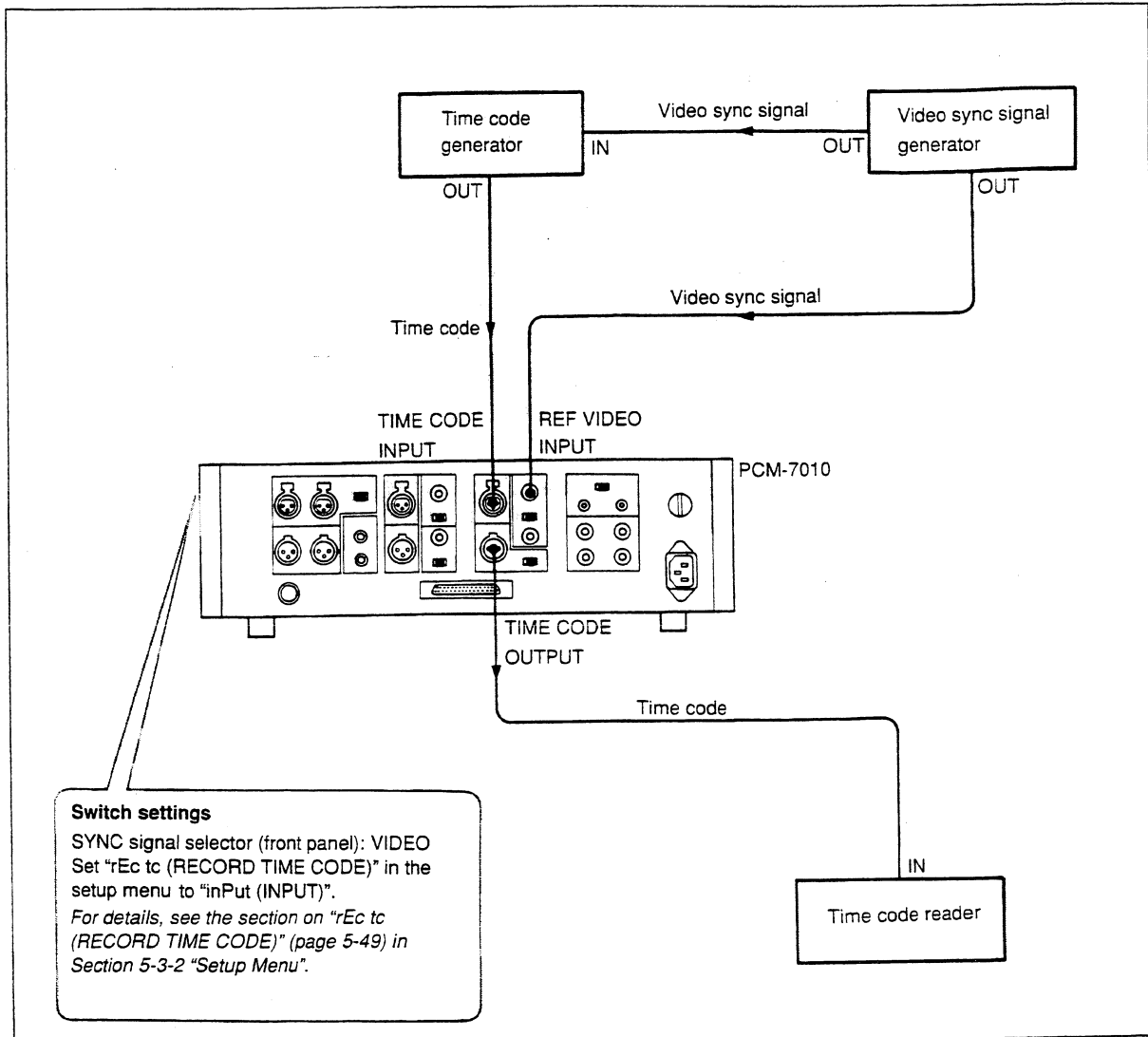
This section describes how to connect the PCM-7010 to other analog audio equipment to record and play back analog audio signals.



Basic connections

When DABK-7010 Time Code Reader/Generator Option Is Installed

When the DABK-7010 is installed on the PCM-7010, connect to other time code reader/generator as in the illustration below.



When DABK-7010 is installed

3-2-3. Connection Examples for Advanced Facilities

Connection for Digital Copying

Connect as follows when you want to make digital copies (to input digital audio signal and copy the signal).

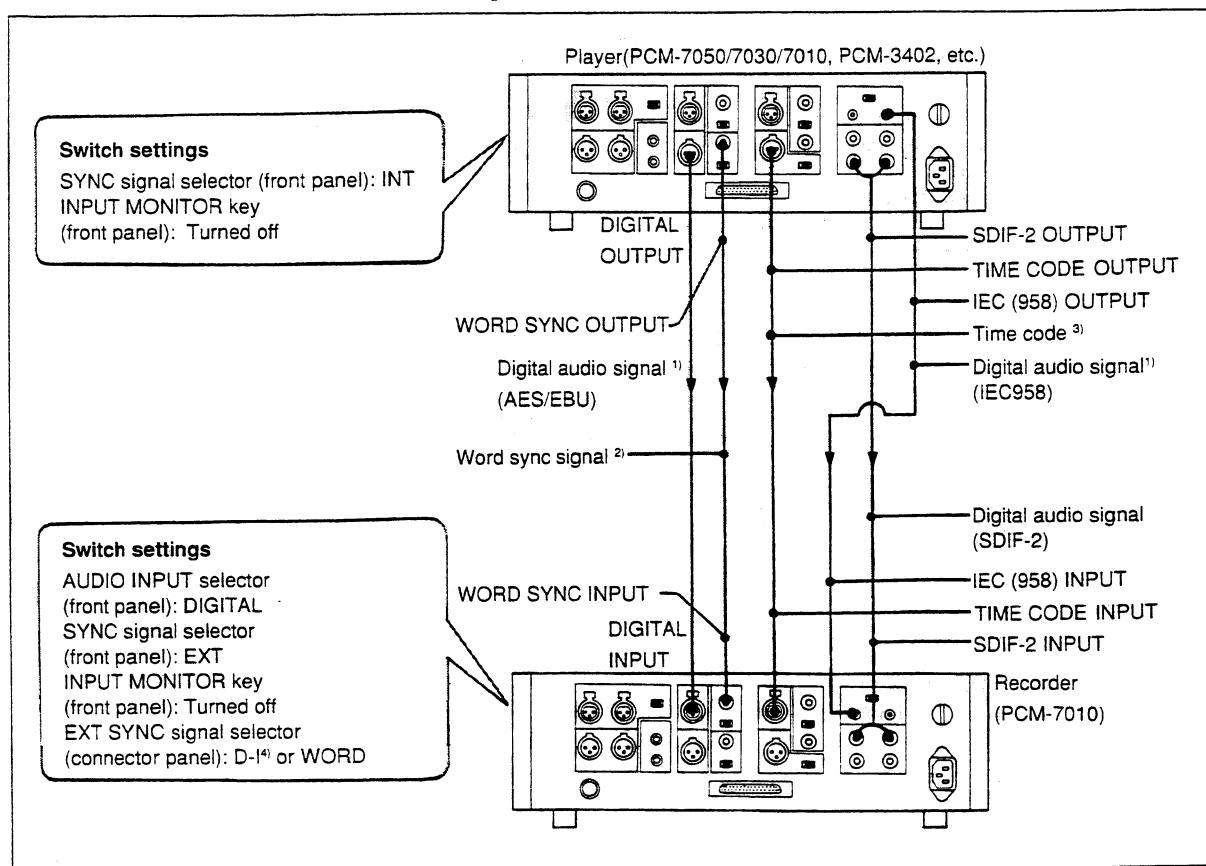
When selecting the digital audio signal, three kinds of formats are available on the PCM-7010: the AES/EBU, the IEC958(SPDIF), and the SDIF-2 format. The AES/EBU, IEC958 selector on the connector panel (DABK-7011A/7011B) can be used to select the AES/EBU format or the IEC958(SPDIF) format. By using the Setup menu, you can select the digital audio signal in the SDIF-2 format.

The rules for performing digital copying in the IEC958(SPDIF) format are based on those of the Serial Copy Management System.

See the section on “dio SEL(DIGITAL I/O SELECT)” (page 5-50) and the section on “coPY id (COPY ID)” (page 5-65) in Section 5-3-2 “Setup Menu”.

In the following example, the PCM-7010 is equipped with the DABK-7010 and the DABK-7011A/7011B.

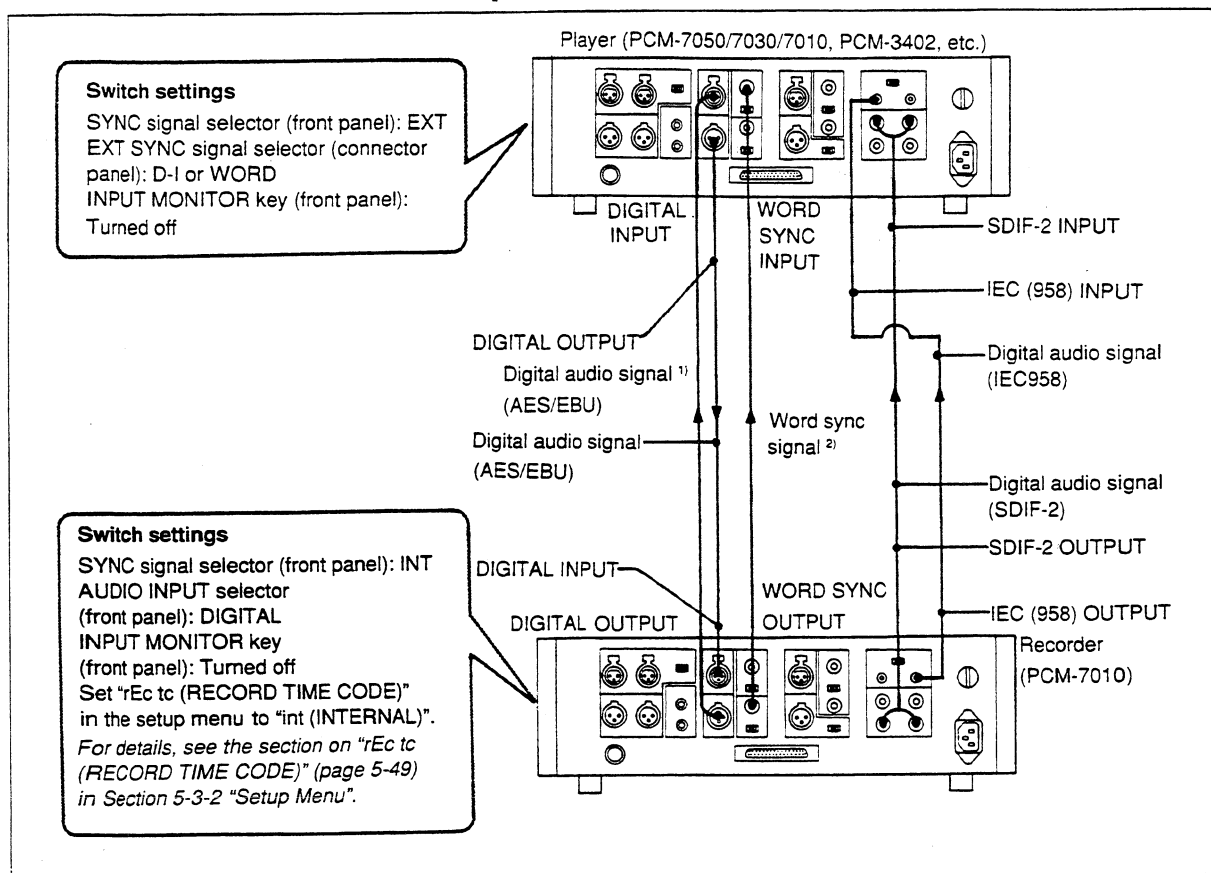
Example 1: When the recorder is a slave unit



Digital audio signal connection (1)

- 1) This signal is also used as the external sync signal (D-I sync signal). The digital audio signal in the SDIF-2 format cannot be used as the external sync signal.
- 2) When you set the EXT SYNC signal selector to WORD, this signal is required as the external sync signal. If the switch is set to D-I, then the connection is not necessary.
- 3) Make this connection and menu setting of "rEc tc (RECORD TIME CODE)" in the setup menu when you copy the time code. For details, see the section on "rEc tc (RECORD TIME CODE)" (page 5-49) in Section 5-3-2 "Setup Menu".
- 4) While the EXT SYNC selector is set to D-I, the AES/EBU, IEC958 selector on the connector panel (DABK-7011A/7011B) can be used to select the AES/EBU format or the IEC958 (SPDIF) format. Also the digital audio input/output signal changes for formatting.

Example 2: When the recorder is a master unit



Digital audio signal connection (2)

1), 2) When the recorder is a master unit, signal either 1) or 2) is used as external sync signal.

Notes

- To make a digital copy with the time code and the audio signals in line with each other, set the "tc dLY" (time code delay) of a dial menu to "d out" (digital output).

For details, see the section on "tc dLY (TIME CODE DELAY)" (page 5-61) in Section 5-3-2 "Setup Menu".

- In digital copying between two PCM-7010's or between a PCM-7010 and a PCM-7050/7030, the unit doesn't copy the subcode signals such as Start ID or ABS TIME even if you follow the above setting. To copy subcode ID signals, follow one of the procedures below:
 - First copy the audio signal and time code signal when the "tc dLY" (time code delay) is set to "d out" (digital output). Then write the subcode IDs in the INSERT mode.

— Make connections in the REMOTE (37P) connector as shown below, then you can copy the Start ID, Skip ID, and End ID, as well as the audio signals and the time code signals simultaneously.

Note that in this digital copy, the copied ID signals are 1 to 3 frames behind the audio signals and the time code signals.

OUTPUT side		INPUT side	
START ID STATUS OUT (11)	←→	START ID WRITE COMMAND IN (30)	
SKIP ID STATUS OUT (12)	←→	SKIP ID WRITE COMMAND IN (31)	
END ID STATUS OUT (13)	←→	END ID WRITE COMMAND IN (32)	

The number in () refers to the pin number of the REMOTE (37P) connector.

Selection of the audio input/output signal

The audio input/output signal for recording and playback is selected when you set the following three controls:

- the AUDIO INPUT selector on the front panel
- “dio SEL”(DIGITAL I/O SELECT) in the Setup menu
- the AES/EBU, IEC958 selector on the connector panel (DABK-7011A/7011B)

The digital audio signal in the SDIF-2 format is output from the unit with no relation to the above settings.

Setting of the: Selected audio signal	AUDIO INPUT selector on the front panel	“dio SEL” in the Setup menu	AES/EBU, IEC958 selec- tor on the connector panel
Analog audio input/output signal	ANALOG	—	—
Digital audio input/output signal in the AES/EBU format	DIGITAL	otHErS	AES/EBU*
Digital audio input/output signal in the IEC958 (SPDIF) format	DIGITAL	otHErS	IEC958*
Digital audio input/output signal in the SDIF-2 format	DIGITAL	SdiF-2*	—

* The indicator which shows the selected digital audio signal format appears on the display.

Selection of the external sync signal

The external sync signal is selected when you set the following two controls:

- the EXT SYNC selector on the connector panel (DABK-7011A/7011B)
- the AES/EBU, IEC958 selector on the connector panel (DABK-7011A/7011B)

Setting of the: Selected external sync signal	EXT SYNC selector on the connector panel	AES/EBU, IEC958 selector on the connector panel
AES/EBU format D-I sync signal	D-I*	AES/EBU
IEC958 (SPDIF) format D-I sync signal	D-I*	IEC958
Word sync signal	WORD*	—

* The indicator which shows the selected sync signal appears on the display.

Relation between the audio signal and the external sync signal

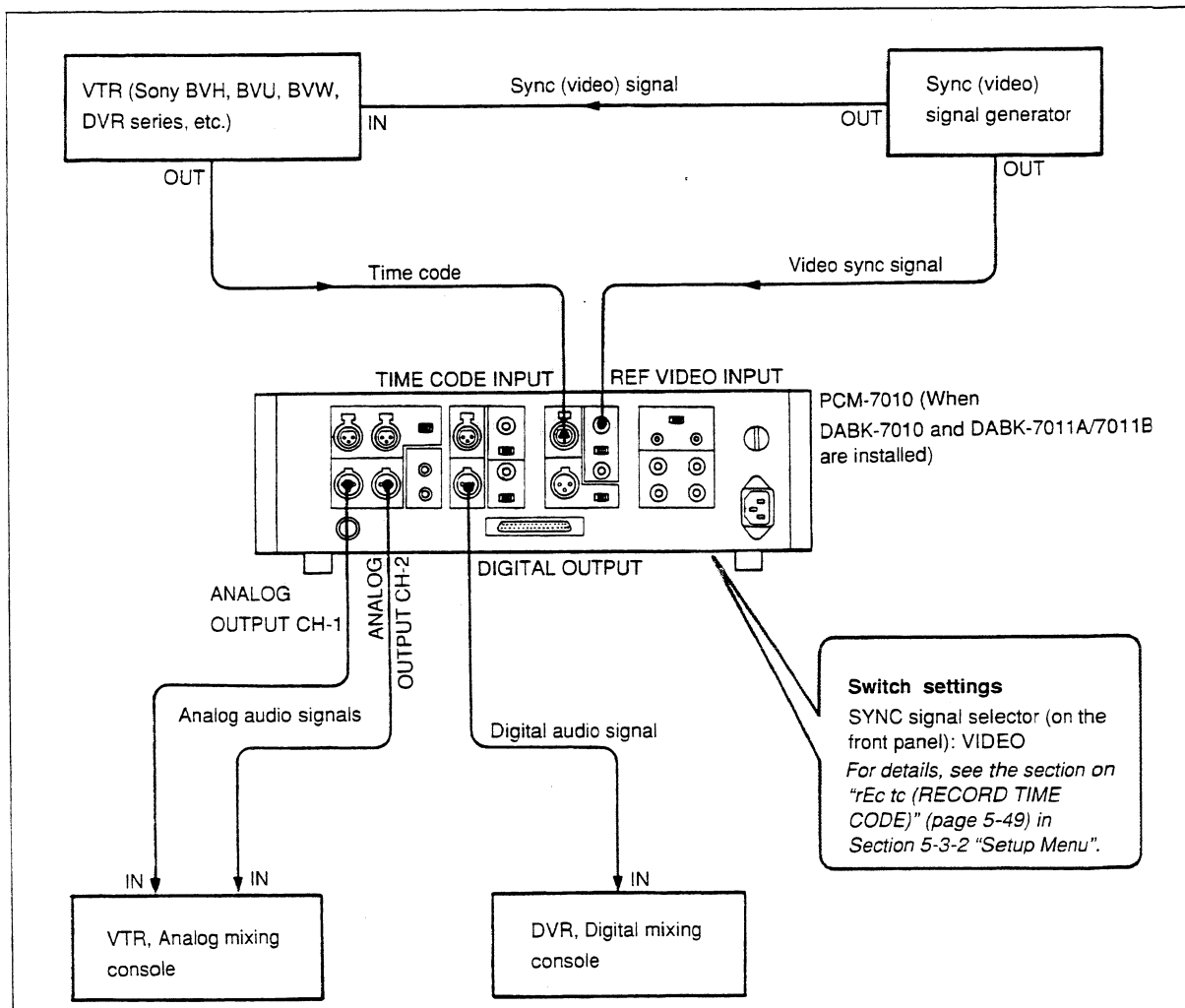
The following table shows the relation between the audio input/output signal and the external sync signal when the PCM-7010 enters the synchronized operation mode.

External sync signal Selected audio signal	AES/EBU format D-I sync signal	IEC958 (SPDIF) format D-I sync signal	Word sync signal
Analog audio input/output signal**	sync O.K.	sync O.K.	sync O.K.
Digital audio input/output signal in the AES/EBU format	sync O.K.	sync N.G.	sync O.K.
Digital audio input/output signal in the IEC958 (SPDIF) format	sync N.G.	sync O.K.	sync O.K.
Digital audio input/output signal in the SDIF-2 format	sync O.K.	sync O.K.	sync O.K.

** For analog audio recording, the external sync signal is not necessary.

Synchronizing with Video Equipment

Connect the units as in the illustration below to synchronize with the video equipment.



Connecting to the video equipment

Note

When the playback time code is synchronized with the input video signal, set the "SYncPb" (SYNC PB) in the Setup menu to "ENABLE".

For details, see the section on "SYncPb (SYNC PB)" (page 5-68).

3-2-4. Power Connection

Checking the voltage setting

- **For the United States and Canada models (Serial No. 800001 and Higher)**

The unit is designed to operate on 120V AC.

- **For the European models (Serial No. 600001 and Higher)**

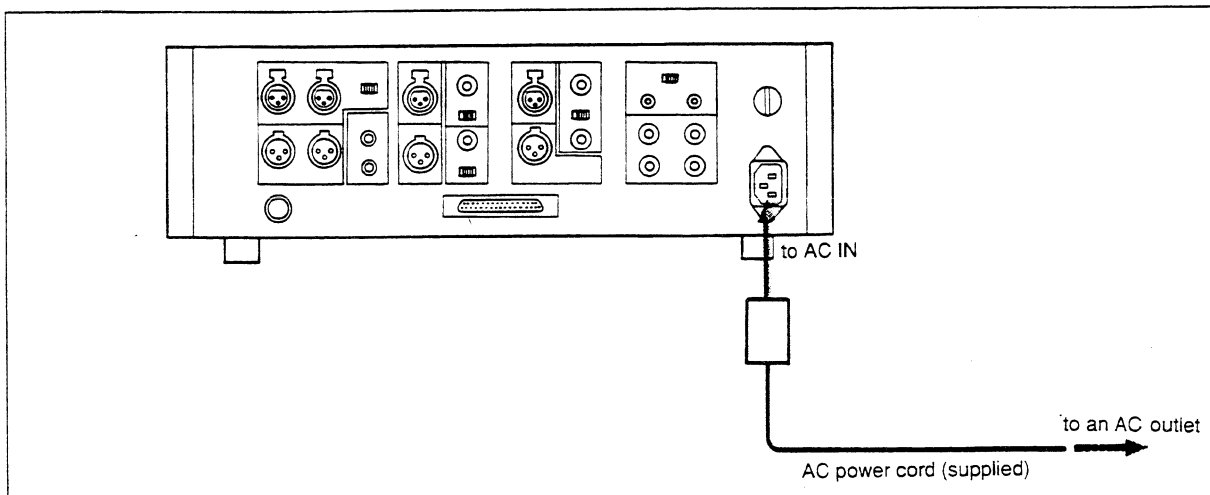
The unit is designed to operate on 230 to 240V AC.

You can select from three operating voltage settings: 120V AC, 220V AC, and 230 to 240V AC.

Changing the voltage selector may require the use of a different line code or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

Supplying the power

Insert the plug of the supplied AC power cord into the AC IN connector and to an AC outlet as shown in the illustration below.



Power connection

Notes

- **For the United States and Canada models (Serial No. 800001 and Higher)**

Use the supplied AC power cord equipped with 3-pin plug. When the VOLTAGE SELECTOR is set for 220V or 230V-240V operation, use only UL listed cord set, rated 250V min., and for current involved, fitted with the attachment plug rated for the voltage selected.

- **For European models (Serial No. 600001 and Higher)**

Use the supplied AC power cord without 3-pin plug (bare wires). When using the bare-wire cord, be sure to read the instructions written on the back of the front cover of this manual.

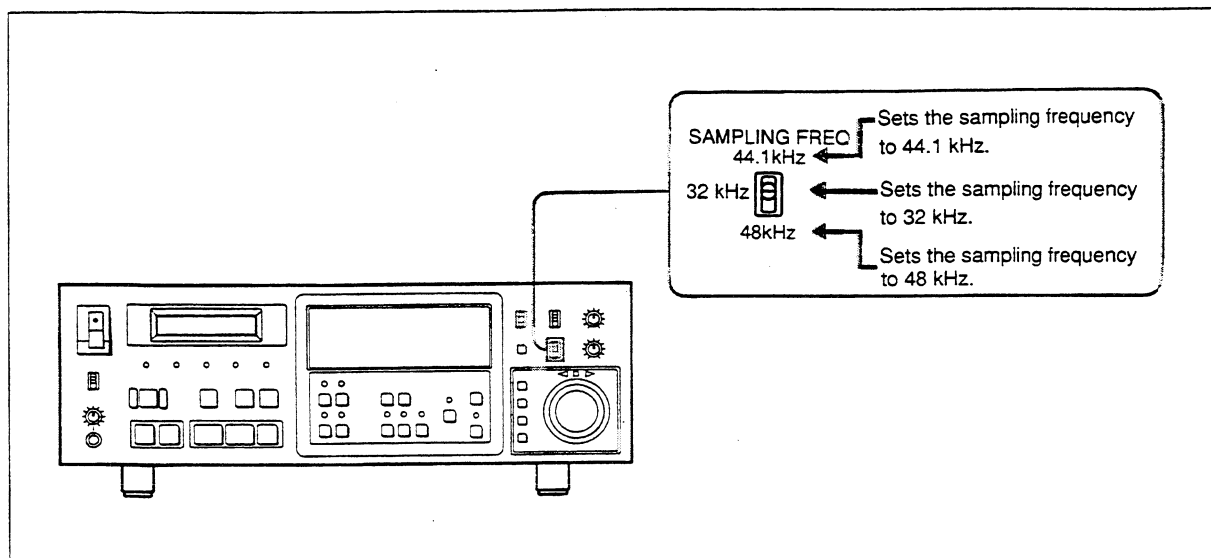
3-3. Initial Settings

This section describes the settings required before you start operating the PCM-7010.

3-3-1. Selecting the Sampling Frequency

Select the sampling frequency for recording with the SAMPLING FREQ selector.

In the playback mode, the sampling frequency is automatically selected according to the sampling frequency of the tape ID.



SAMPLING FREQ selector

Note

When you record on a pre-recorded tape, set the sampling frequency according to the ID on the tape. Even if the setting is different from that of the tape ID, the PCM-7010 follows the sampling frequency on the tape.

To record on the recorded tape using the different sampling frequency

We recommend you avoid using two different sampling frequencies on a tape. Erase the old record first with the bulk eraser for metal tape before you record on the tape in a different sampling frequency.

Using the recorded tape without erasing the old record

In the cases below, the PCM-7010 follows the sampling frequency setting on the unit even though it is different from that on the tape. That causes two different frequencies on a tape. Note that it might spoil the effect of the operation.

- **When there are some unrecorded parts on a tape**

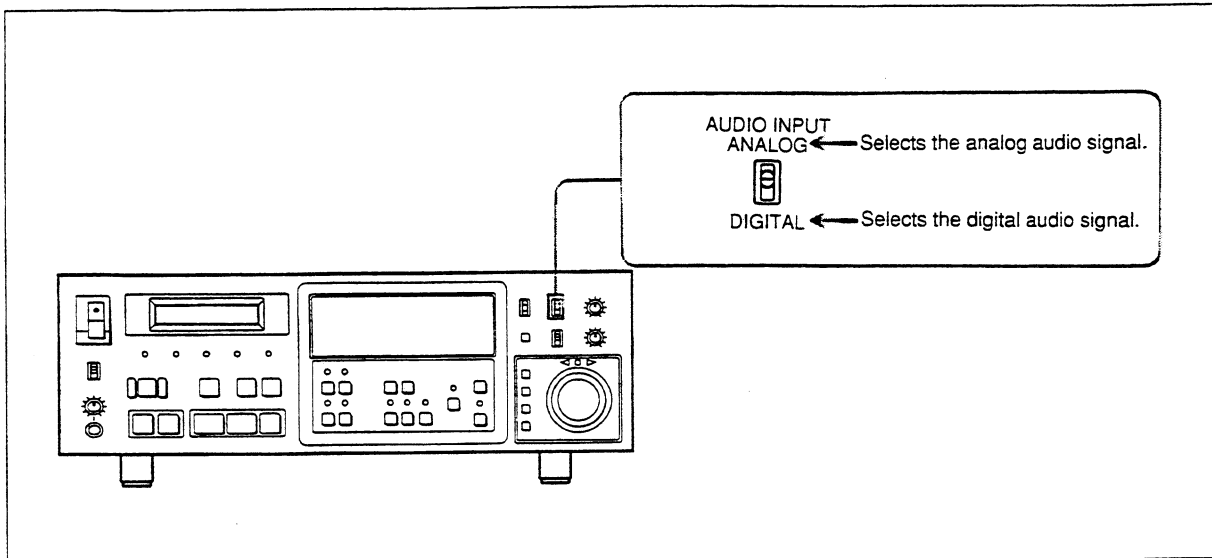
The sampling frequency of the unrecorded part can be changed with the SAMPLING FREQ selector on the unit.

- **During tape loading**

After you insert a tape, there is a time interval of a few seconds before the unit reads the tape ID. Therefore, if you press the REC key and the PLAY key at the same time within a few seconds after the STANDBY key is turned on, the sampling frequency of the PCM-7010 follows the SAMPLING FREQ selector setting even if it is different from that of the tape ID.

3-3-2. Selecting the Input Signal

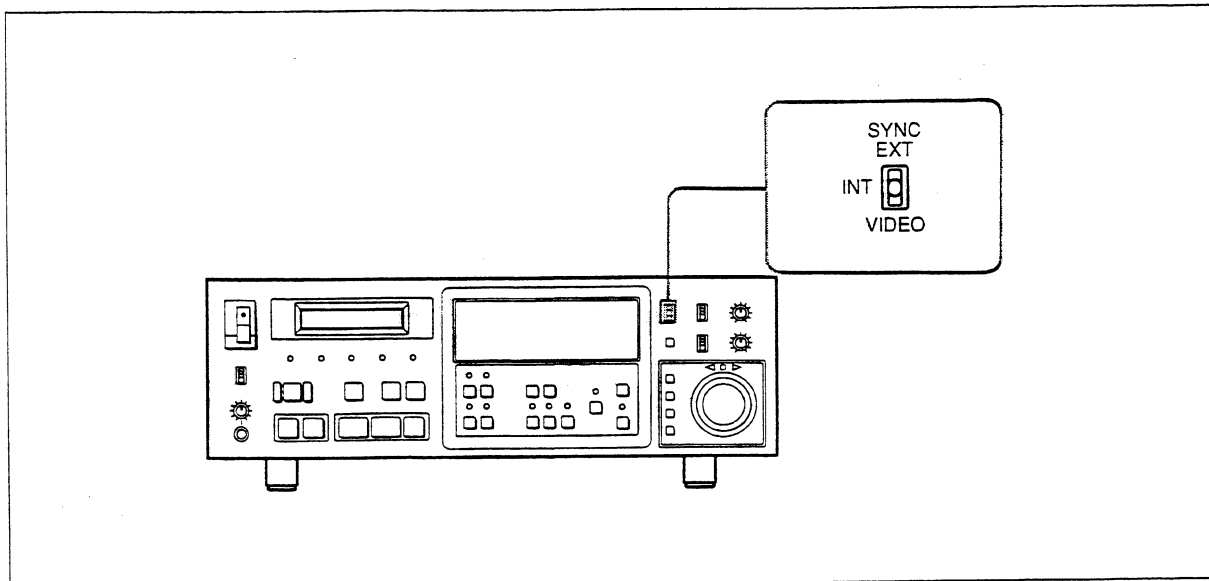
The PCM-7010 inputs either analog audio signals or digital audio signals. Select one of the two types of input signals with the AUDIO INPUT selector.



AUDIO INPUT selector

3-3-3. Selecting the Sync Signal

One of the following sync signals is required in synchronized operation. Select the appropriate signal with the SYNC signal selector.



SYNC signal selector

EXT: The PCM-7010 synchronizes with either the D-I sync signal* (D-I) or word sync signal (WORD) according to the setting of the EXT SYNC signal selector on the connector panel (when a DABK-7011A/7011B is installed).

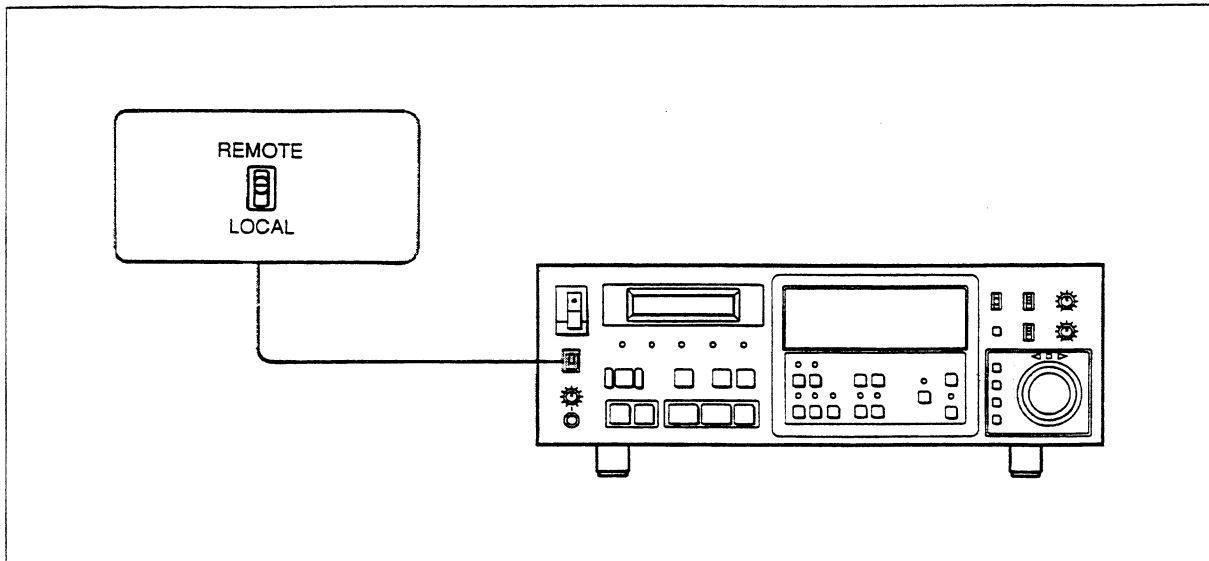
* When the EXT SYNC selector on the connector panel (DABK-7011A/7011B) is set to D-I, the AES/EBU, IEC958 selector on the connector panel (DABK-7011A/7011B) selects the sync signal in the AES/EBU format or in the IEC958 format.

INT: The PCM-7010 synchronizes with the internal clock signal. Set the selector to this position when you use the PCM-7010 as the master unit, or use only the PCM-7010 without connecting it to another unit.

VIDEO: The PCM-7010 synchronizes with the signal coming from the video equipment which is connected to the REF VIDEO INPUT connector (on optional DABK-7010).

3-3-4. Selecting the REMOTE/LOCAL Setting

Select the REMOTE/LOCAL setting according to the system configuration.



REMOTE/LOCAL selector

REMOTE: You can control the PCM-7010 only from the controller connected to the RS-232C connector on the connector panel (DABK-7013, optional). In this case, it is not possible to control from the front panel, REMOTE (8P) connector and REMOTE (37P) connector on the connector panel except for the keys and the switches shown below.

- STOP key
- EJECT key
- DISPLAY key
- Dial menu keys (MENU, DATA, SET, and RESET keys)
- SYNC signal selector
- AUDIO INPUT selector
- SAMPLING FREQ selector

LOCAL: The key operation from the front panel is effective along with the control from the REMOTE (8P) connector and REMOTE (37P) connector on the connector panel.

3-4. Power Supply

This section explains about the power supply and factory (or default) settings of the dial menu.

3-4-1. Power Supply

How to set up the power supply

Push the POWER switch to ON.

The initializing display appears for a short time, then the basic display appears.

For more details on display, see Section 2-2 "Display" (page 2-8).

3-4-2. Factory Settings

The table below describes the changeable factory(default) settings of this unit. Refer to the pages in the table for more details.
(The order of the setup items in the table corresponds to that of the dial menu.)

Setup item	Factory setting	Refer to pages..
Time code base (type of tape time shown on the display and used for the locate operation)	AUTO: The time code recorded on the tape is automatically used as the time code base.	5-45
Time code format and video sync signal frequency	SMPTE time code, drop frame mode, 29.97Hz (for the model for USA and Canada) or EBU, 25 Hz (for the model for European countries)	5-47
Recording time code	INT: The time code generated in the internal generator	5-49
Digital audio input/output signal format ***	AES-EBU: AES/EBU format (According to the switch setting of the AES/EBU, IEC958 selector on the connector panel)	5-50
Emphasis setting for analog audio input	OFF	5-51
Frequency range of the external sync signal (word sync or D-I sync signal) within which the unit can lock to that signal in the external synchronization mode*	ON: NARROW (The unit locks within a range of ± 100 ppm.)	5-52

* With the DABK-7011A/7011B installed

*** With the DABK-7011B installed

Setup item	Factory setting	Refer to pages...
Grade of the setup menu (whether to expand the setup menu)	BASIC: Setup menu grade is not expanded.	5-53
Opening/closing the menus related to time code	CLOSE: The menus related to time code are not opened.	5-54
Operation mode of the built-in time code generator	OFF (REC RUN/REGEN): The time code starts running from the set initial value.	5-55
Time code output (whether to output the off-tape time code)**	OFF: The off-tape time code is output from the TIME CODE OUTPUT connector.	5-57
Whether to regenerate the external time code**	ON: The external time code input to the unit is regenerated.	5-58
User bit to be recorded on the tape**	TC SEL: The unit selects the user bit data to be recorded according to the menu setting of "rEc tc (RECORD TIME CODE)" in the setup menu.	5-59
Whether or not to display the user bit data on the display using "U-BIT" of the DISPLAY key menu	OFF: User bit data does not display.	5-60
Signal whose phase is compared to that of the time code output signal to make them agree with each other**	D OUT: The phase of the time code output signal is made agree with that of the digital audio output signal.	5-61
Opening/closing the setup menus related to the system control	CLOSE: The menus related to system control are not opened.	5-63
Whether or not to record Start ID automatically when ASSEMBLE recording starts	OFF: Start ID is not recorded automatically when ASSEMBLE recording starts.	5-64
Digital copy ID (when Main ID data are recorded)	PERMIT: Digital copy permission ID (00) is recorded.	5-65
Whether or not to write the time data automatically when assemble recording starts	OFF: Time data are not written automatically when assemble recording starts.	5-67
Whether or not to make the phase of the playback time code agree with that of the external video sync signal**	ENABLE: When playback starts with the time code format setting other than film and with the video sync signal being input, the phase of the playback time code is made to agree with that of the input video sync signal.	5-68

** With the DABK-7010 installed

Setup item	Factory setting	Refer to pages...
Rollback of tape after ASSEMBLE recording stops	ON: The tape rolls back after ASSEMBLE recording stops.	5-70
Memory start mode (when the unit is turned on)***	OFF: The unit does not automatically enter the memory start mode when it is turned on.	5-72
Delay time for memory start***	0:(0 millisecond) At memory start the playback sound is heard immediately after the PLAY key is pressed.	5-73
Enabling/disabling the INPUT MONITOR key	ENABLE: During playback in the local mode the INPUT MONITOR key is operative.	5-75
Enabling/disabling the tape transport control keys	ENABLE: During playback in the local mode the tape transport control keys are operative.	5-76
Tape transport mode into which the unit enters after the cue mode	STOP: The unit enters the stop mode when the CUE key is pressed during CUE mode.	5-77
Operation mode of the REMOTE (8P) connector	PLAY: The unit is controlled by the PLAY command of the remote controller.	5-78
Opening/closing the setup menus related to the display	CLOSE: The menus related to the display are not opened.	5-79
Conditions under which the PB CONDITION indicator lights	BAD COND: The PB CONDITION indicator lights if the error rate goes high due to poor playback conditions.	5-80
Brightness of the display	D-1: Brightest	5-81
Setting the time of the internal clock	Japan time	5-82
Peak hold mode of the level meters	AUTO: The peak level is held for the duration of time set.	5-83
Hold mode of the "OVER" segments on the level meters	ON: The "OVER" segments on the level meters operate according to the peak hold mode set.	5-84
Peak hold time	1.5 (sec.): 1.5 seconds	5-85
Release time of the level meters	50 (msec.): 50 milliseconds (0.05 seconds)	5-86
Over level detection sensitivity	4 (words): 4 words	5-87
Opening/closing the setup menus related to the signal processor	CLOSE: The menus related to the signal processor are not opened.	5-88
Cross-fade time	10 (msec.): 10 milliseconds	5-89
Soft mute time	05 (msec.): 5 milliseconds	5-91
Operation mode of the low cut filter	OFF: The low cut filter does not operate.	5-92

*** With the DABK-7012 installed

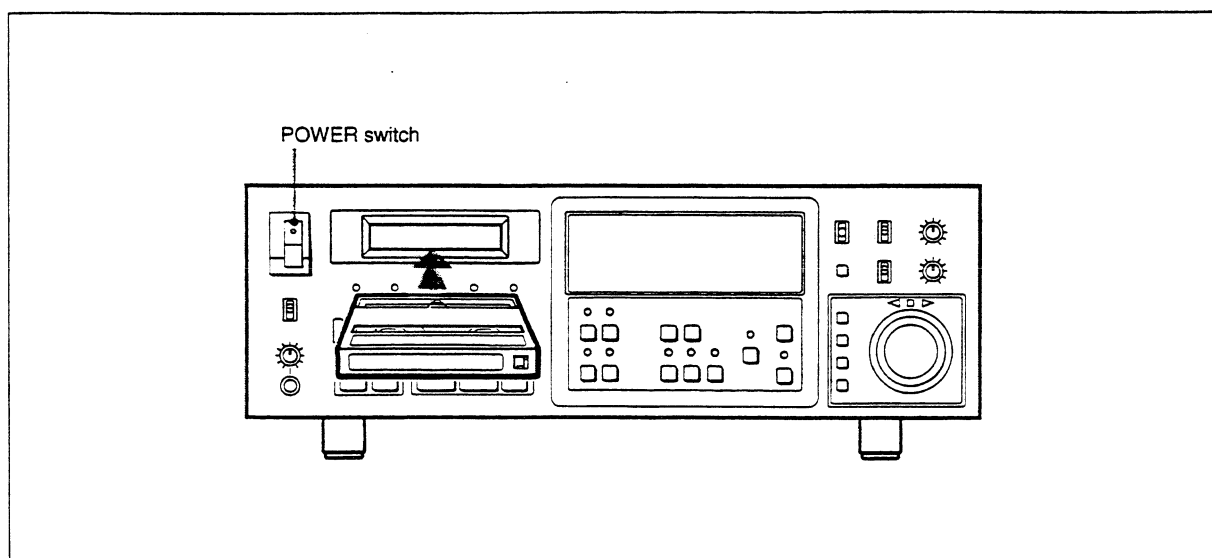
3-5. About DAT Cassettes

For the types of DAT cassettes usable with the PCM-7010, see Section 1-3 "Recommended Equipment and Optional Accessories".

3-5-1. Loading and Unloading Cassettes

Loading

- 1 Check that the POWER switch is set to "ON".
- 2 Insert a DAT cassette.
Push the cassette into the compartment.
The cassette loads automatically.



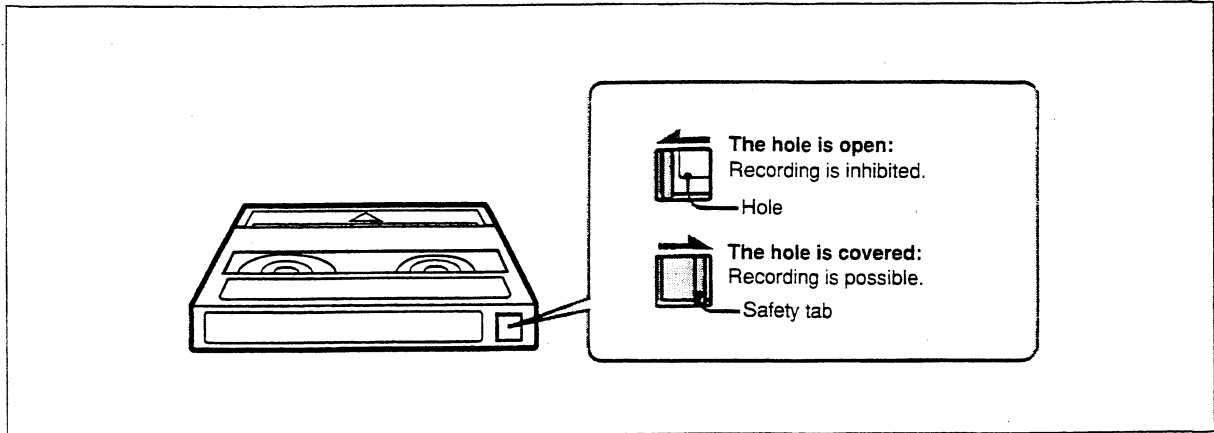
Cassette loading

Unloading

Press the EJECT key before you turn the power off.
The EJECT key lights while the unit is ejecting the cassette.

3-5-2. Preventing Accidental Erasure

To prevent accidental erasure, set the safety tab on the cassette to the position shown below. If you insert a cassette with the tab hole open, the REC INH indicator lights which prevents you from recording.



Preventing accidental erasure

Chapter 4. Recording and Playback

This chapter gives you the basic and advanced procedures for recording and playback. Except for the operation, the section "Recording" includes the general information on the time code function. The section will be especially useful if you are not used to using the time code.

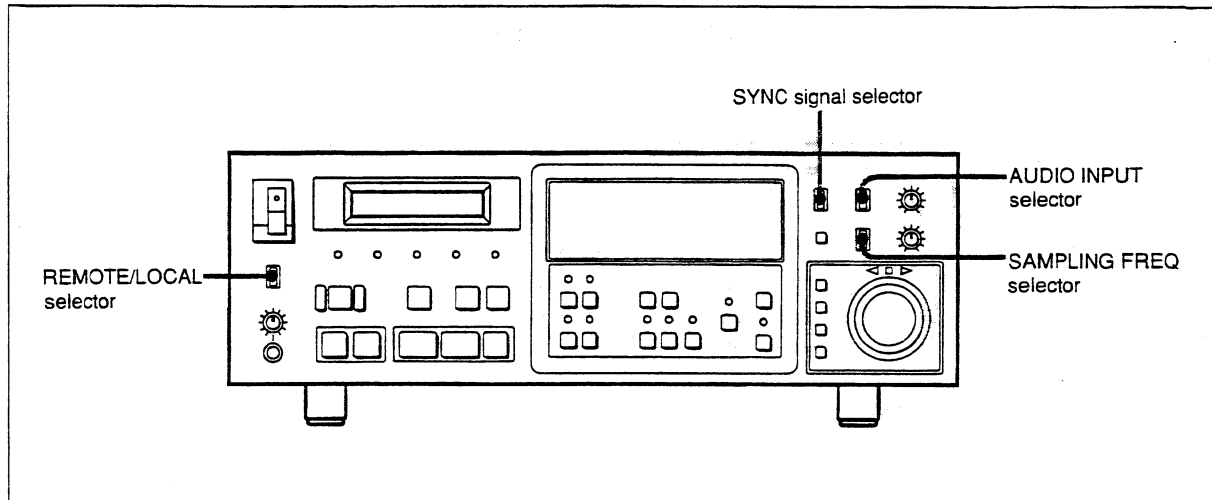
4-1. Recording	4-1
4-2. Playback	4-19
4-3. Advanced Operations	4-27

4-1. Recording

4-1-1. Checking the Initial Settings

Check the following settings before starting the recording.

- Sampling frequency — SAMPLING FREQ selector
- Audio input signal — AUDIO INPUT selector and AES/EBU, IEC958 selector
- Sync signal — SYNC signal selector and AES/EBU, IEC958 selector
- Remote or Local — REMOTE/LOCAL selector



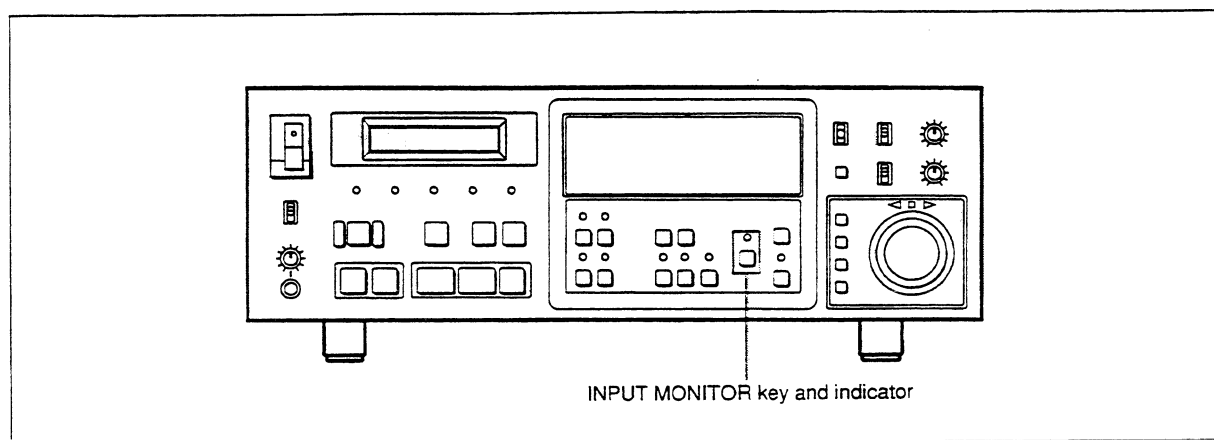
Checking the initial settings

For more details, see Section 3-3 "Initial Settings" (page 3-12).

4-1-2. Selecting the Audio Output Signals

The connectors on the connector panel (such as the ANALOG OUTPUT connectors, the MONITOR output connectors and the DIGITAL OUTPUT connector) and the HEADPHONES jack on the front panel output the audio signals. Using the INPUT MONITOR key, you can select the audio signal to be output.

The PCM-7010 has a function to read after write for off-tape monitoring of what's being recorded. If you set the INPUT MONITOR key to "OFF" (indicator is turned off), you can monitor the playback sound and check the recording condition.



Selecting the audio output signal

Press the INPUT MONITOR key to choose the appropriate audio output signal.

OFF (the indicator is turned off): The unit outputs the off-tape playback signal.

ON (the indicator is on): The unit outputs the input signal. You can check the sound which is going to be recorded, or the playback sound of the player connected to the PCM-7010.

Note

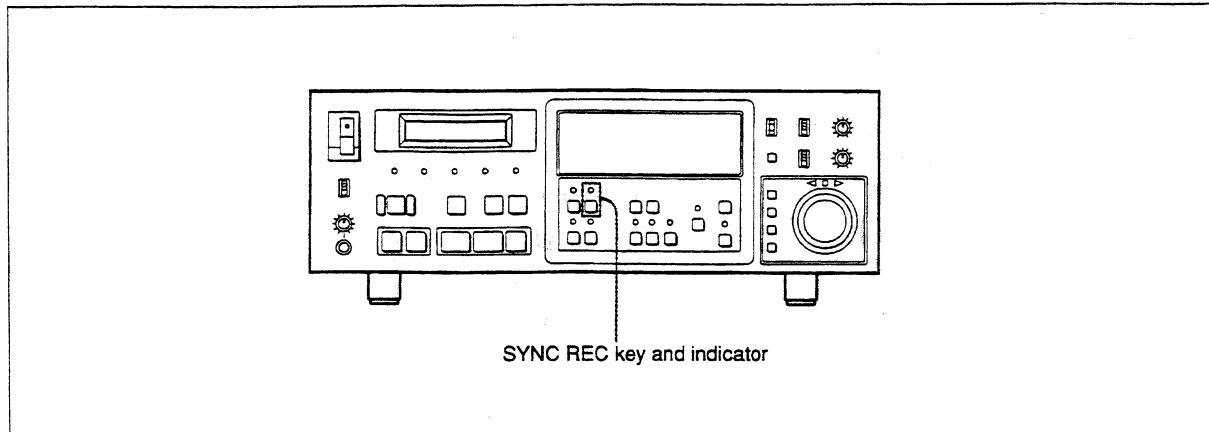
When the unit enters the sync recording mode, the INPUT MONITOR key is automatically set to ON (indicator lights up), and the unit outputs the input signals for monitoring.

For details about sync recording mode, see the section on "Punch-in recording in sync recording mode" (page 4-17) in Section 4-1-6 "Basic Recording Procedure".

4-1-3 Selecting the Sync Recording Mode

This unit edits any portion of the recorded tape by punch-in/punch-out recording. This editing is called sync recording.

To select the sync recording mode or normal recording mode, use the SYNC REC key.



Selecting the sync recording mode

When you press the SYNC REC key, the recording mode and indicator change as follows:

ON (Indicator lights up): Sync recording mode for punch-in/punch-out recording

OFF (Indicator does not light): Normal recording mode

Note

The recording mode is factory-set to ON (indicator lights up when you turn the power on).

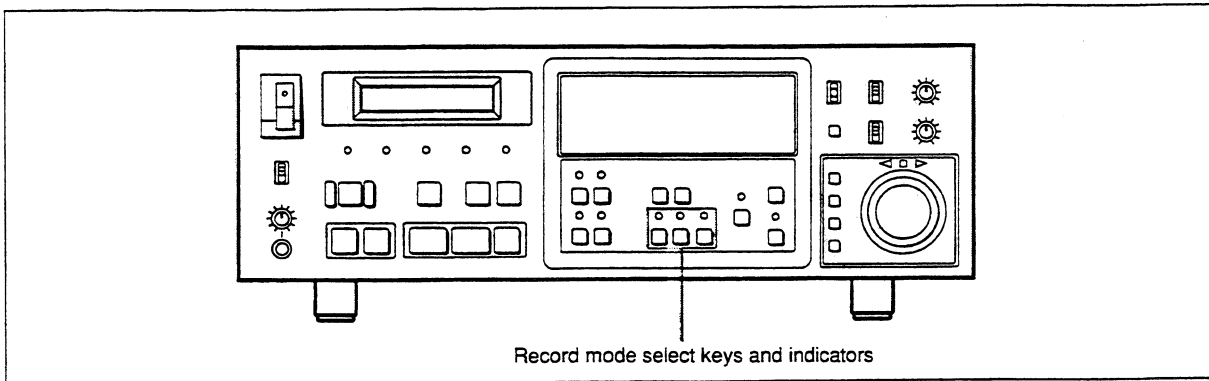
When recording in normal recording mode, press the SYNC REC key and set the recording mode to OFF (indicator does not light).

The setting is saved when you turn the power off.

For details about sync recording mode, see the section on "Punch-in recording in sync recording mode" (page 4-17) in Section 4-1-6 "Basic Recording Procedure".

4-1-4. Selecting the Recording Mode

Press one of the the record mode select keys to set the appropriate recording mode. Choose ASSEMBLE mode if you are using the non-recorded (blank) tape. If you try to start recording without selecting the recording mode, all the record mode indicators flash and recording will not start.



Selecting the recording mode

ASSEMBLE: Records both audio signal and subcode data (time code, absolute (ABS) time, Start ID, etc.).

INSERT AUDIO: Records (inserts) only the audio signals on the recorded tape. (This mode is available only when the unit is in the sync recording mode.)

INSERT SUB: Records (inserts) only the subcode data on the recorded tape.

Note

According to the DAT format, subcode areas are provided at the ends of each tape track. These areas are used for writing various subcodes. The PCM-7010 Digital Audio Recorder records and plays back the following subcode data in the subcode area.

- DAT time code for professional use
- Absolute time (Recording of this subcode data is possible only when recording in the ASSEMBLE mode (including digital copy) or in the INSERT SUB mode.)
- Start ID * (Recording of this subcode data is possible only when recording in the ASSEMBLE mode or in the INSERT SUB mode. To perform digital copying, connect the external controller (such as the RM-D7100 Remote Control Unit, RM-D7200 Dual Remote Control Unit, and a personal computer) to the REMOTE (37P) connector on the rear panel.)

- Skip ID * (Recording of this subcode data is possible when you connect the external controller to the REMOTE (37P) connector on the rear panel.)
 - End ID (Recording of this subcode data is possible when you connect the external controller to the REMOTE (37P) connector on the rear panel.)
- * When digital copying in the IEC958(SPDIF) format, the unit can copy the subcode data if you connect the digital audio signals to the IEC(958) INPUT/OUTPUT connectors, and the copying acts on the rule of the Serial Copy Management System.

4-1-5. General Information on Time Code

This section explains about the time code which is peculiar to digital audio electronic editing or synchronized operation with video equipment. Even if you are experienced in using the time code, be sure to read the **Notes** on the next page.

What is time code?

The digital editing of the recorded digital audio signals require the precise information of the editing point. The time address is recorded on the subcode area of a DAT tape for that purpose, and the recorded data is called "time code". When recording in ASSEMBLE or INSERT SUB mode, the PCM-7010 automatically records the selected time code. The factory setting is SMPTE (29.97Hz), drop frame time code for the model for the USA and Canada, and EBU time code for the model for European countries. (You can change the setting with the Dial menu.)

SMPTE/EBU time code

The PCM-7010 has adopted the SMPTE/EBU time code of IEC standard. The SMPTE time code applies to the NTSC format, and the EBU time code to PAL/SECAM format. The factory setting is the SMPTE or EBU as described above.

To change the factory setting SMPTE to EBU or EBU to SMPTE time code, see the section on "rEF tcF (REFERENCE TIME CODE FORMAT)" (page 5-47) in Section 5-3-2 "Setup Menu".

Notes

- Record the same type of time code continuously on a DAT tape. If there is a non-recorded or discontinuous area on the tape, a failure may occur during the search or editing operations.
- The time code used by the non-professional DAT recorder is called ABS time (Absolute time: the tape running time from the beginning of the tape), which is different from the time code used in this unit. When you use the tape recorded on a non-professional DAT recorder, set the time code base (TC BASE) of the PCM-7010 to ABS TIME, or overwrite the time code before editing.

On the time code base, see the section on "tc bASE (TIME CODE BASE)" (page 5-45) in Section 5-3-2 "Setup menu".

- We recommend you use the professional SMPTE/EBU time code as the time code base in the recorder unit for editing. As for the player unit, you can use the ABS time code because the player unit outputs the SMPTE/EBU time code after converting it from the ABS time code.
- As long as the PCM-7010 is operating (not in the stop mode), the unit usually outputs the playback time code in normal speed even in the FF/REW or cue mode. During the FF/REW operation, though, tape speed changes up to the 150 times normal speed. Therefore, in high speed mode such as FF/REW, the time code count jumps according to the tape speed after 5 continuous frames as in the following example:

Example: 1 2 3 4 5, 81 82 83 84 85, 161 162 163 164 165 ...

(Actual time code count is in hours, minutes, seconds, and frames units, such as "00H00M00s00F".)

4-1-6. Basic Recording Procedure

Recording audio signals

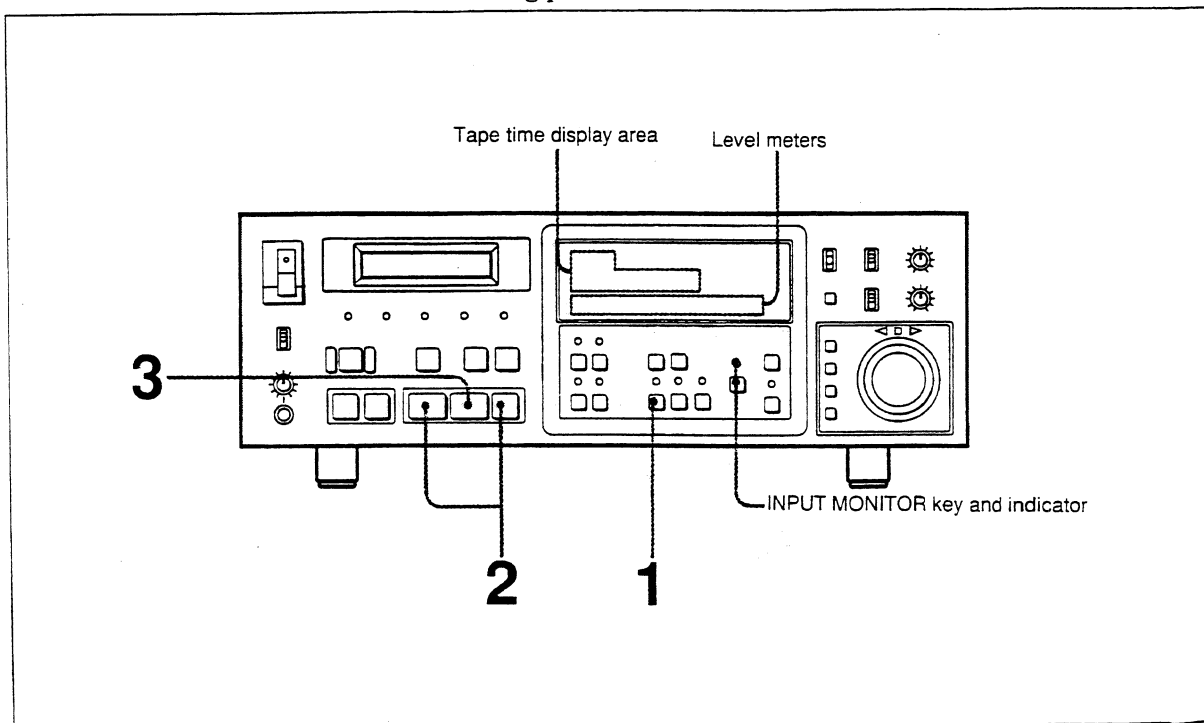
Record mode settings

ASSEMBLE (audio signals and subcode data) mode

In the ASSEMBLE mode, the unit records subcode data (such as time code, absolute time and Start ID) as well as the audio signals.

Also see Section 4-1-2 "Selecting the Audio Output Signals" (page 4-2) on the recording mode, and the following "Recording procedure" and Section 4-1-4 "General Information on Time Code" (page 4-4) on recording the time code. About the Start ID, see the section "Writing and erasing Start ID" (page 4-11).

Recording procedure



Recording procedure

- 1** Check the recording mode is set appropriately to ASSEMBLE.
- 2** While holding the REC key down, press the PLAY key.
The REC key and the PLAY key light and recording starts. The recording level of the audio signal and the time code mode display on the Level meters and in the tape time display area on the Display respectively.
- 3** Press the STOP key to stop recording.

Output signal and the level display while recording

When the INPUT MONITOR key is turned on, the unit displays and outputs the input signal. When the key is turned off, the unit displays and outputs the playback signal after recording.

Also see Section 4-1-2 "Selecting the Audio Output Signals" (page 4-2).

Controlling the recording level

When you select ANALOG with the AUDIO INPUT selector, you can control the recording level with the ANALOG AUDIO INPUT level controls. The center position of the controls indicates the reference level. When you select DIGITAL with the AUDIO INPUT selector, you can control the recording level with the menu setting of "inP GAIN" (INPUT GAIN) in the Setup menu.

See the section on "inP GAIN (INPUT GAIN)" (page 5-30) in Section 5-3-2 "Setup menu" for more details.

About level diagram

The relationship between the input and output signal level and the display on the level meters is called the "level diagram". In the factory setting, the incoming and outgoing +4 dBs signal displays as -20 dB on the level meters. If you want to use a different level, please consult a qualified Sony service technician for resetting.

Note

The format of time code used in recording and playback follows the setting of the setup menu, and not the format of input time code or that of the tape ID.

Recording the time code

Recording mode setting

ASSEMBLE: Records the audio signals and the time code simultaneously. Choose this mode when using a blank tape.

INSERT SUB: Records a subcode data such as Start ID and time code. Choose this mode when using a pre-recorded tape.

Setting the time code format

The initial setting of the time code may not correspond to the format used in your area. If the setting shown in the display is wrong, change it to the format used in the area. (The SMPTE time code applies to the NTSC format, and the EBU time code to PAL/SECAM format.)

To change the setting, see the section on “rEF tcF (REFERENCE TIME CODE FORMAT)” (page 5-47) in Section 5-3-2 “Setup Menu”.

Selecting the time code to be recorded (when a DABK-7010 is installed)

Select the time code with the “rEc tc (RECORD TIME CODE)” in the setup menu.

“int” (INTERNAL): When recording the time code from the built-in time code generator

“inPut” (INPUT) [EXtERnAL]: When recording the time code from the TIME CODE INPUT connector (on the DABK-7010 connector panel)

For details, see the section on “rEc tc (RECORD TIME CODE)” (page 5-49) in Section 5-3-2 “Setup Menu”.

Pre-setting the time code value

When you are going to record the time code from a built-in time code generator, you can set the initial value.

See Section 5-2-9 “Setting the Start Time Value of the Time Code Generator — GEN SET TIME” (page 5-23) for more details.

Selecting the mode of the built-in time code generator

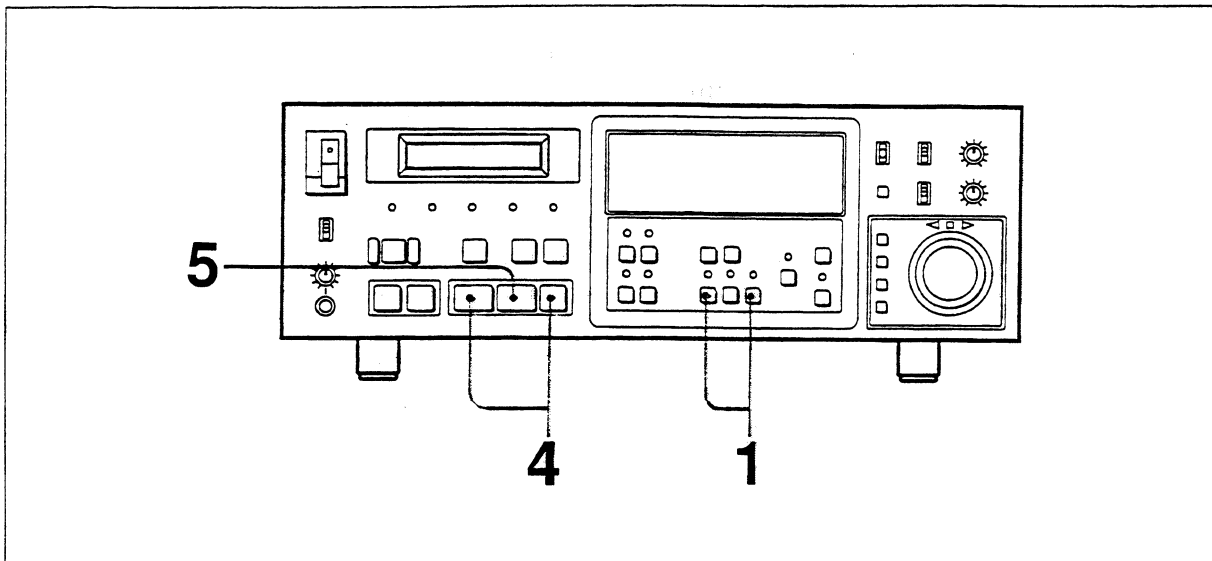
The PCM-7010 has two kinds of time code generator mode as follows. The factory setting mode is OFF (REC RUN/REGEN).

OFF (REC RUN/REGEN): The unit generates the time code from the initial setting value. If you don't define the initial value, the unit generates the time code continuously according to the recorded time code on the tape.

ON (FREE RUN): The unit generates the time code at all times having no relation to the tape running mode.

To change the mode, see the section on “FrEErun (FREE RUN)” (page 5-55) in Section 5-3-2 “Setup Menu” for more details.

Recording procedure



Recording procedure

- 1** Check the setting of the record mode select keys (ASSEMBLE or INSERT SUB).
- 2** If the DABK-7010 is installed, check the setting of the “rEc tc (RECORD TIME CODE)” in the setup menu.
- 3** If the recording time code is set to “int” (INTERNAL), then set the initial value of the recording time code.

For setting procedure, see Section 5-2-9 “Setting the Start Time Value of the Time Code Generator—GEN SET TIME” (page 5-23).

- 4** While holding the REC key down, press the PLAY key.
The REC key and PLAY key light, and recording begins from the initial setting. The time code displays in the tape time display area on the display while recording.
- 5** Press the STOP key to stop recording.

Writing and erasing Start ID

The PCM-7010 can write Start ID in the subcode area on the tape. The Start IDs are useful for locating a certain point on the tape.

Writing Start ID

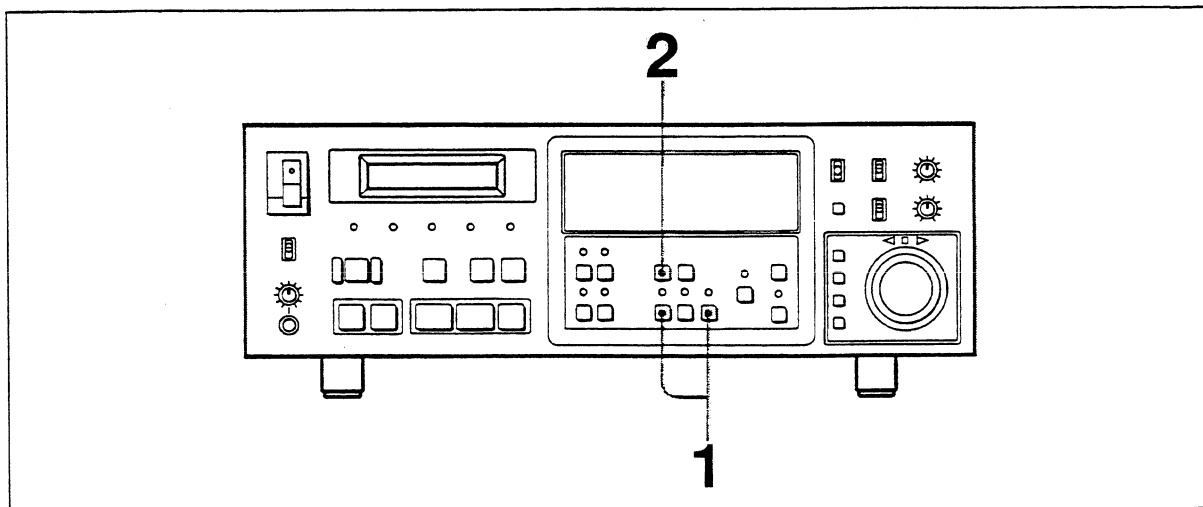
You can write Start ID on a blank tape together with the audio signals, or separately on the recorded tape while listening to the playback sound.

Record mode setting

ASSEMBLE: Writes Start ID while recording audio signals.

INSERT SUB: Writes Start ID while playing back audio signals.

SYNC REC: Writes Start ID during punch-in recording.



Writing Start ID

- 1** Check the setting of the record mode select keys (ASSEMBLE or INSERT SUB).
- 2** Press the START ID WRITE key at the desired point while recording in ASSEMBLE mode or playing back in the INSERT SUB mode.
The Start ID is written to the tape for 9 seconds. During that time, "START ID" flashes and "WRITE" lights red on the display.

Notes

- When you write more than one Start ID, take at least 9-second intervals between the Start IDs. If the interval is less than 9 seconds, the unit might skip the ID when locating.

See Section 4-2-3 “Locating Specific Points on a Tape” (page 4-22) for details on locating by Start ID.

- If you select Start ID Auto-Réc mode, the Start IDs are written on the tape whenever the PCM-7010 records in the assemble mode.

For the setting, see the section on “S-id Auto (START ID AUTO REC)” (page 5-64) in Section 5-3-2 “Setup Menu” for details.

Start ID and memory start

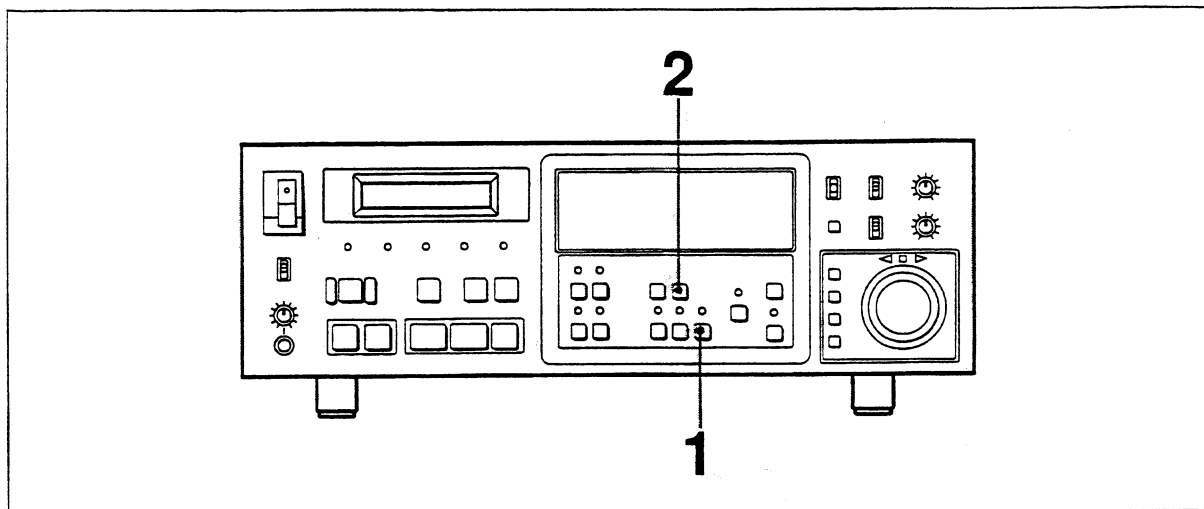
When the DABK-7012 Memory Start option is installed in the PCM-7010, this unit has a memory start function which enables the quick output of playback sound. Using this function, you can set the Start ID point more precisely.

See Section 4-3-2 “Outputting Playback Signals Immediately after Pressing the PLAY Key (with DABK-7012 Memory Start Option Installed in the Unit) — Memory Start Function” (page 4-29).

Erasing Start ID

The unit can locate and erase Start ID as follows:

Record mode setting: INSERT SUB



Erasing Start ID

- 1** Make sure the record mode select key is set to INSERT SUB.
- 2** Press the START ID ERASE key during playback or when the tape is in stop mode.
“START ID” and “ERASE” flash on the display, and the tape rewinds to locate to the previous Start ID.
Then “ERASE” on the display lights while the unit erases the Start ID. The tape stops automatically after erasing the Start ID.

Writing/erasing the Program Number

The PCM-7010 can write the Program Number in the subcode area on the tape. The Program Number is useful for locating and searching a certain point on the tape.

Writing Program Number

You can write the Program Number on a blank tape together with the audio signals and the Start ID. You can also write the Program Number from the first Start ID of the recorded tape (with the audio signals and the Start ID).

You can also renumber the Program Number from the first Start ID. *For details about locating a point on the tape using the Program Number, see the section on "Locating Program Number—PROGRAM NUMBER LOCATE" (page 4-25) in Section 4-2-3 "Locating Specific Points on a Tape".*

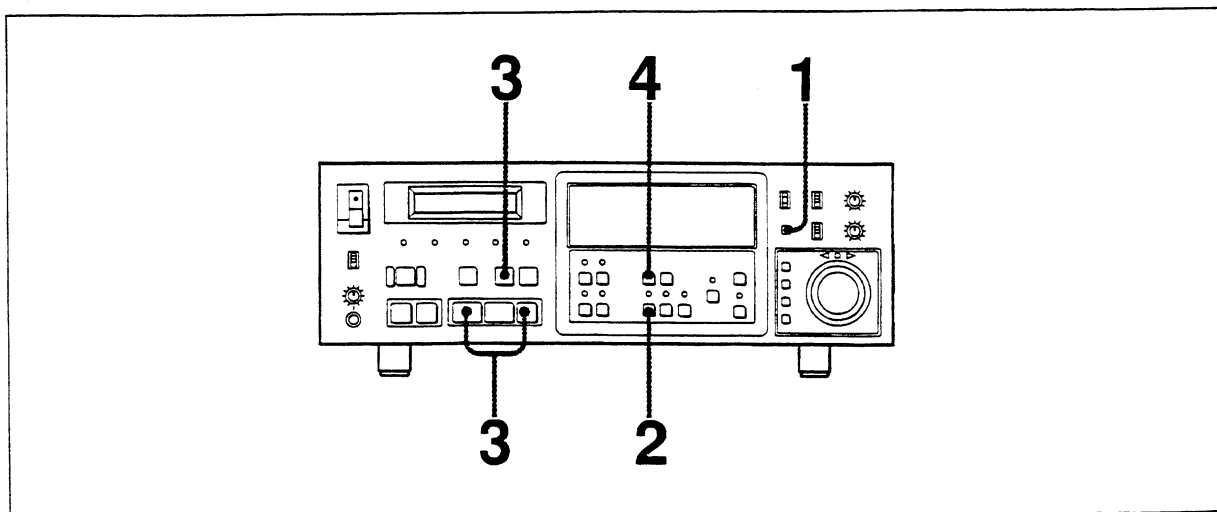
Note

You can write a Program Number on a tape that has a Start ID, or write it simultaneously with a Start ID.

Record mode setting

ASSEMBLE: This mode writes the Program Number while recording audio signals and the Start ID.

INSERT SUB: This mode renumbers the Program Number.



Writing Program Number

- 1** Press the DISPLAY key and set the display to "P- - L- -".
The unit displays recording Program Number after the "P".
- 2** Set the record mode select key to ASSEMBLE.

3 When the unit records from the top of the tape:

Press the PLAY key while holding down the REC key.
The unit begins writing the Program Number from 01.

When the unit records any portion of the tape:

Press the PREVIOUS key to locate the previous Start ID, then press the PLAY key while holding the REC key down.
If the previous Start ID already has the Program Number, the unit writes the Program Number continuously.

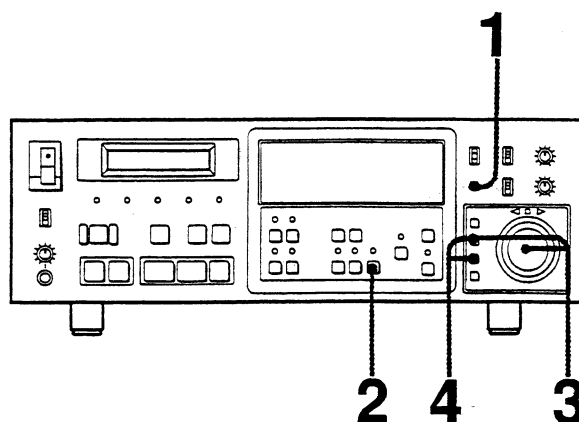
4 Press the START ID WRITE key to write the Start ID and the Program Number in the assemble recording mode.

The "START ID" indicator flickers and the unit writes the Start ID and the Program Number for nine seconds; the "WRITE" indicator lights up red. After recording them, the unit returns to normal mode.

Note

When the unit records any portion of the tape and the previous Start ID has no Program Number, or when writing the Start ID in the insert sub mode, the unit does not write the Program Number. In this case, renumber the Program Number after writing the Start ID.

Renumbering Program Number



Renumbering Program Number

- 1** Press the DISPLAY key and set the display to "rEno --".
- 2** Set the record mode select key to INSERT SUB.
- 3** Turn the shuttle dial while pressing the DATA key to set the Program Number of the top of the tape.
To increase the Program Number: Turn the shuttle dial clockwise.
To decrease the Program Number: Turn the shuttle dial counterclockwise.
- 4** Press the SET key while holding the DATA key down.
The unit rewinds the tape and writes the Program Number from the top Start ID of the tape according to the above number setting.

When renumbering the Program Number, the unit displays "P--r--". After the "P", the unit displays the writing Program Number, and after the "r", the unit displays the setting value of the Program Number of the tape top.

Erasing Program Number

Set the record mode select key to INSERT SUB and erase the Start ID; the unit erases the Program Number at the same time.

For details about erasing the Start ID, see the section on "Writing/erasing Start ID" (page 4-11) in Section 4-1-6 "Basic Recording Procedure".

Punch-in recording in sync recording mode

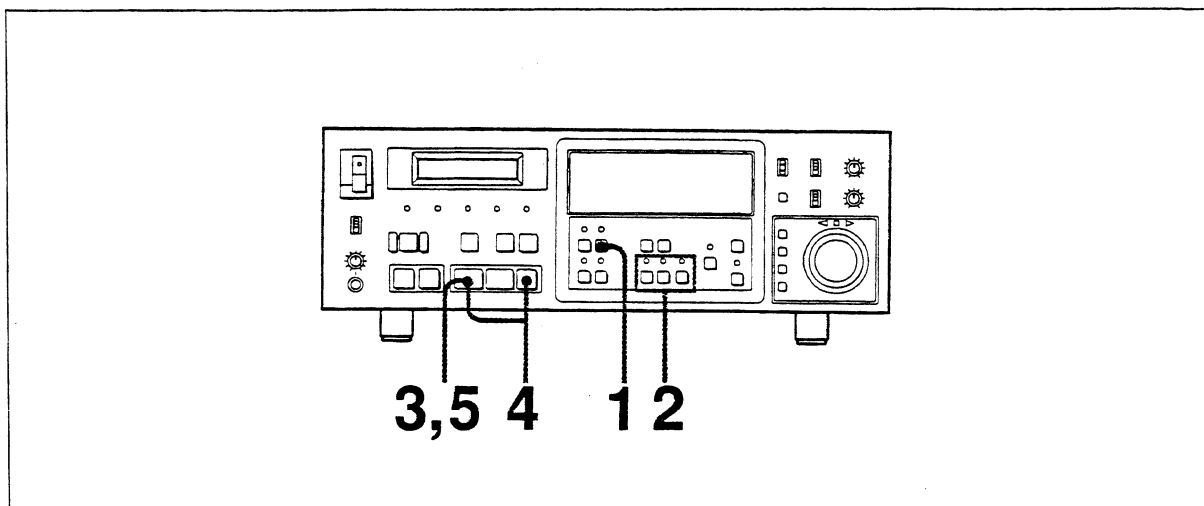
This unit edits any portion of the recorded tape by punch-in/punch-out recording. This editing is called sync recording.

In the sync recording mode, the unit records either audio signals or subcode data, or both audio signals and subcode data.

Sync record mode setting

The SYNC REC key is set to on. (The indicator lights up.)

Recording procedure



Punch-in recording

- 1** Check that the sync recording mode is set appropriately to on.
- 2** Select the recording mode with the record mode select keys.
ASSEMBLE: Records both audio signal and subcode data.
INSERT AUDIO: Records (inserts) only the audio signal.
INSERT SUB: Records (inserts) only the subcode data.
- 3** Press the PLAY key to play the recorded tape.
- 4** Press the PLAY key while holding down the REC key to perform punch-in recording.
The punch-in recording starts by lighting the REC key and the PLAY key.
- 5** Press the PLAY key to punch-out.
The REC key turns off and the punch-in recording finishes.
The tape does not stop when the punch-in recording has finished.

About cross-fade time

When recording in the sync recording mode, the unit cross-fades at the punch-in/punch-out point. The setting of the cross-fade time can change in the setup menu. (The factory-set value is 10 milliseconds.)

For details about cross-fade time, see the section on “Selecting the cross-fade time” (page 5-89) in Section 5-3-2 “Setup Menu”.

Note

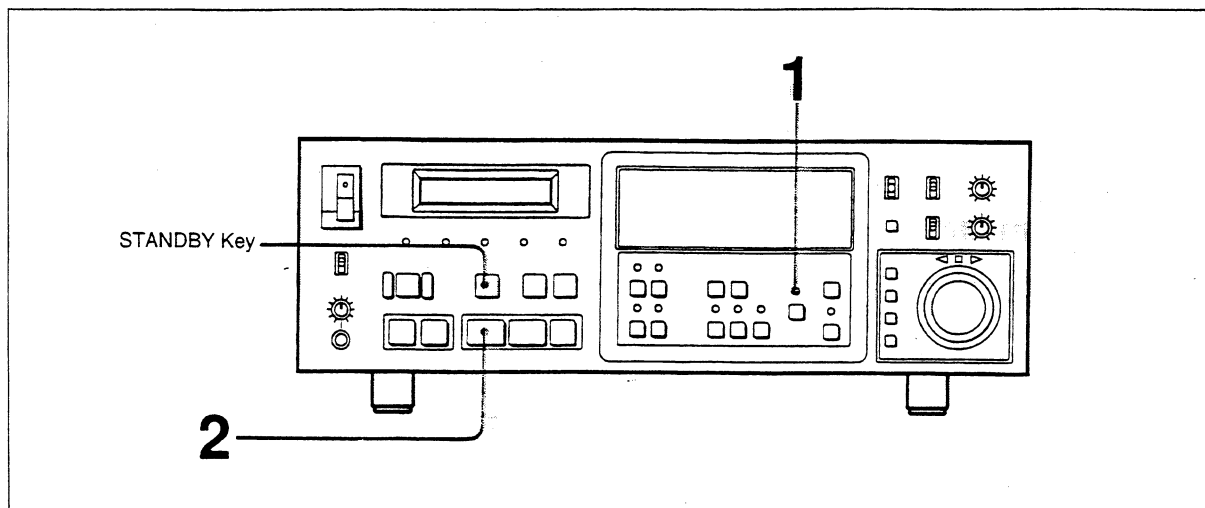
The sync recording mode is set to on (the indicator lights up) at the factory.

To change for normal recording mode, press the SYNC REC key and set the sync recording mode to off (the indicator turns off). The setting is saved when you turn the power off.

When the sync recording mode is set to off, you cannot select the INSERT SUB key in the recording mode. The unit performs the recording in the insert sub mode. In this case, the switch setting of the SYNC REC key is ignored.

4-2. Playback

4-2-1. Playback Procedures



Playback procedure

- 1** Check that the INPUT MONITOR indicator is turned off.
- 2** Press the PLAY key.
The PLAY key lights and playback begins.

About the STANDBY key

The head drum operation changes as follows every time you press the STANDBY key:

When the key is turned on (standby on): The head drum is rotating. In this state, the time needed to start playback after you press the PLAY key is reduced. If you leave the head drum rotating without doing any operation, it automatically stops after about 3 minutes. This is to protect the tape from damage.

When the key is turned off (standby off): The head drum stops.

Adjusting the audio output level

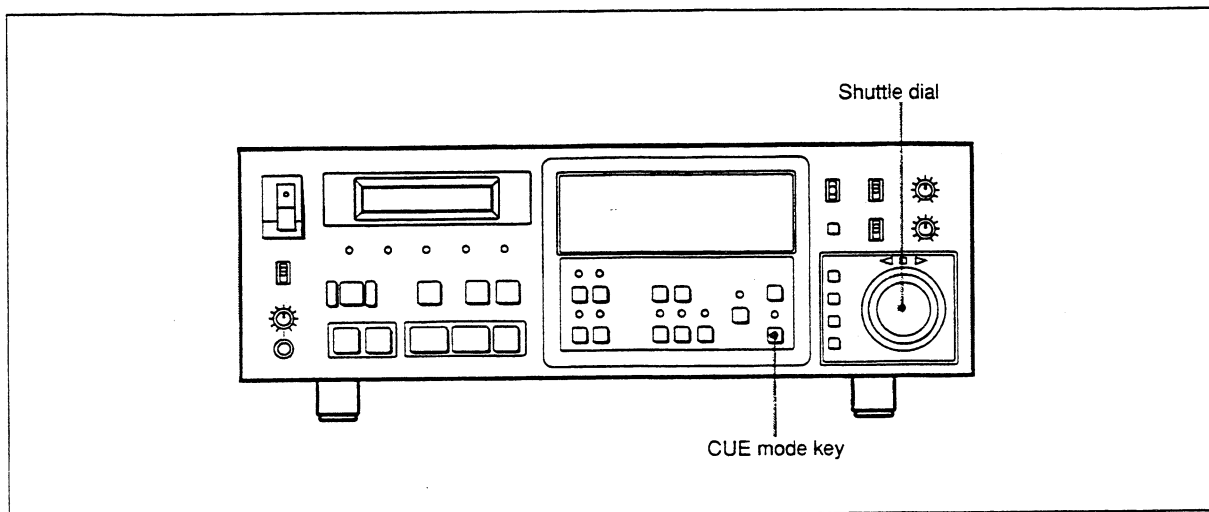
You can adjust the audio output level with “outP GAIN (OUTPUT GAIN)” in the setup menu. In this case, both the analog signal and the digital signal are adjusted.

For details, see the section on “outP GAIN (OUTPUT GAIN)” (page 5-32) in Section 5-3-1 “Display Menu”.

4-2-2. Cuing the Tape

This section explains how to locate a certain point on a tape while monitoring the playback sound (Cuing). You can change the cuing speed within a range from $\frac{1}{2}$ to 8 times normal speed in both forward and reverse directions.

Setting cue mode



Cue mode setting and the shuttle dial

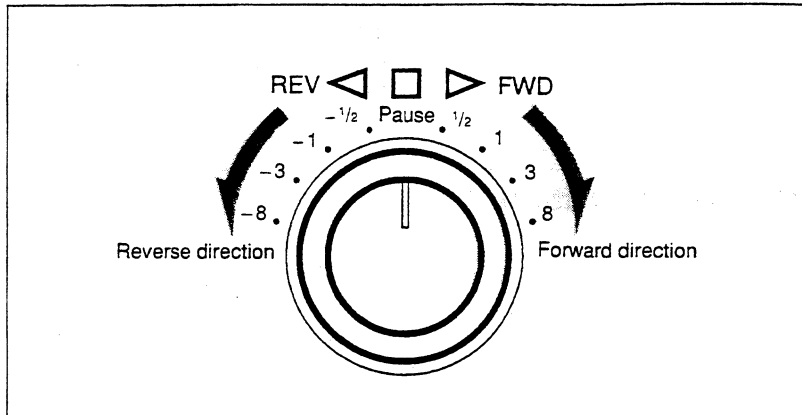
Press the CUE mode key.
The indicator lights and the tape stops momentarily (cue mode).

Cue the tape with the shuttle dial as follows.

Cuing

The playback speed while cuing changes according to the position of the shuttle dial. Turn the shuttle dial to change the tape speed. You can select a tape speed in eight settings of $\pm\frac{1}{2}$, ± 1 , ± 3 , or ± 8 times the normal playback speed. Release the shuttle dial to pause.
The following figure shows the shuttle dial, which adjusts the playback speed.

According to the playback direction, either FWD indicator or REV indicator lights while cuing the tape.



The shuttle dial and the playback speed

At the center point “●”, the tape is in pause mode and the indicator “□” lights. This condition lasts only about 10 seconds to protect the tape from damage, and then the recorder enters the standby ON mode.

Getting out of cue mode

Press CUE key again or press one of the tape transport control keys such as the PLAY key or STOP key to get out of the cue mode.

When you repress the CUE key to exit the cue mode, the unit enters the STOP mode (with the factory setting).

You can change the tape transport mode, which the unit enters after the cue mode, to the playback mode by using “AFtr cuE (AFTER CUE)” from the Setup menu.

See the section on “AFtr cuE (AFTER CUE)” (page 5-77) in Section 5-3-2 “Setup Menu” for the procedure for changing the tape transport mode.

4-2-3. Locating Specific Points on a Tape

This unit can locate a specific tape point quickly. The “time code locate” locates a desired point using the time code, and the “ID locate” locates the IDs on the tape which have been set beforehand.

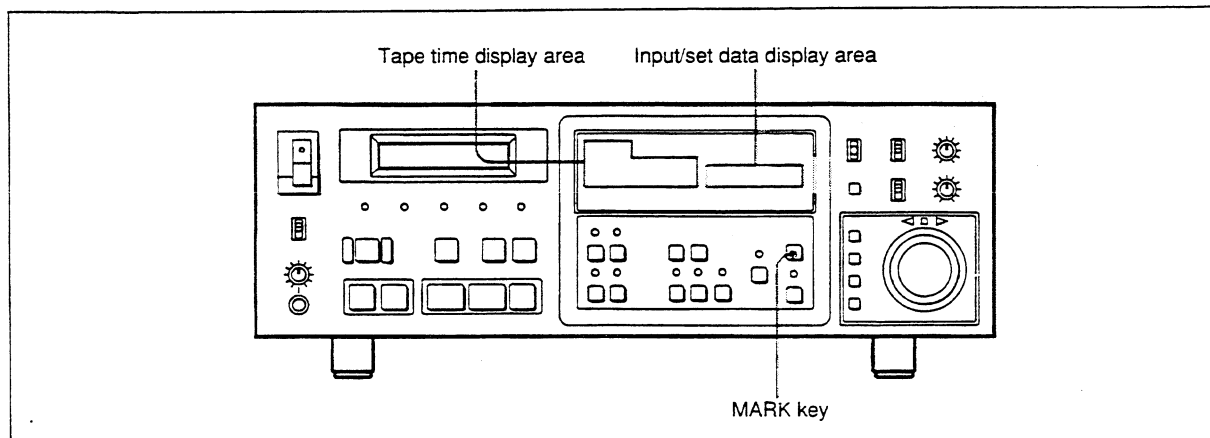
Time code location

The unit locates the point displayed on the input/set data display area. You can set the point by:

- pressing the MARK key while listening to the playback sound, or
- using the DISPLAY key menu to set the time code if you know the exact time code to be located.

To set the locate point using the MARK key — LOCATE POINT

While listening to the playback sound, you can store a time code in memory. The stored time code will be used as the locate point.



Setting the locate point with the MARK key

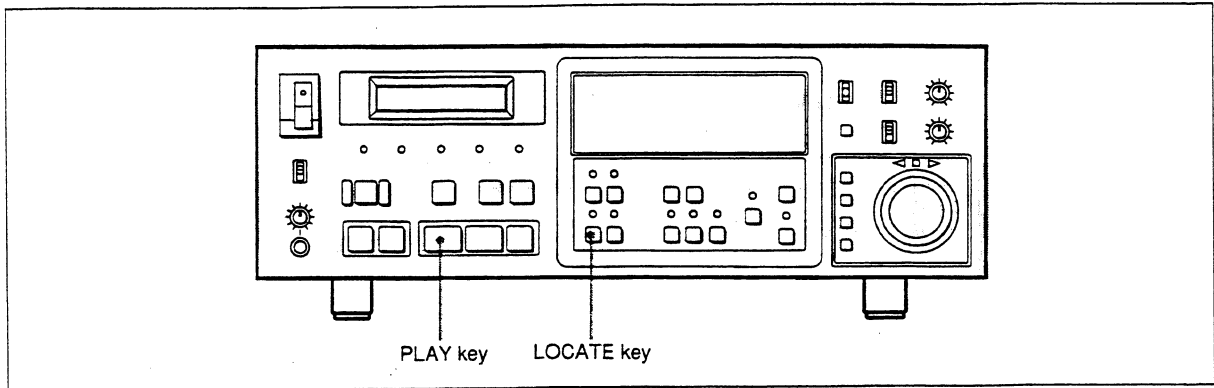
Press the MARK key while monitoring the playback sound and the display in the tape time display area. The time code of the point appears in the input/set data display area as the locate point.

Setting the time code to be located with the menu operation

You can set the time code to be located with the DISPLAY key menu operation. This is useful when you know the exact time code to be located.

For more details on time code setting, see Section 5-2-2 "Setting the Desired Locate Point — LOCATE POINT" (page 5-14).

Locating procedure



Time code location

Press the LOCATE key after setting the locate point.
The tape finds the point and stops.

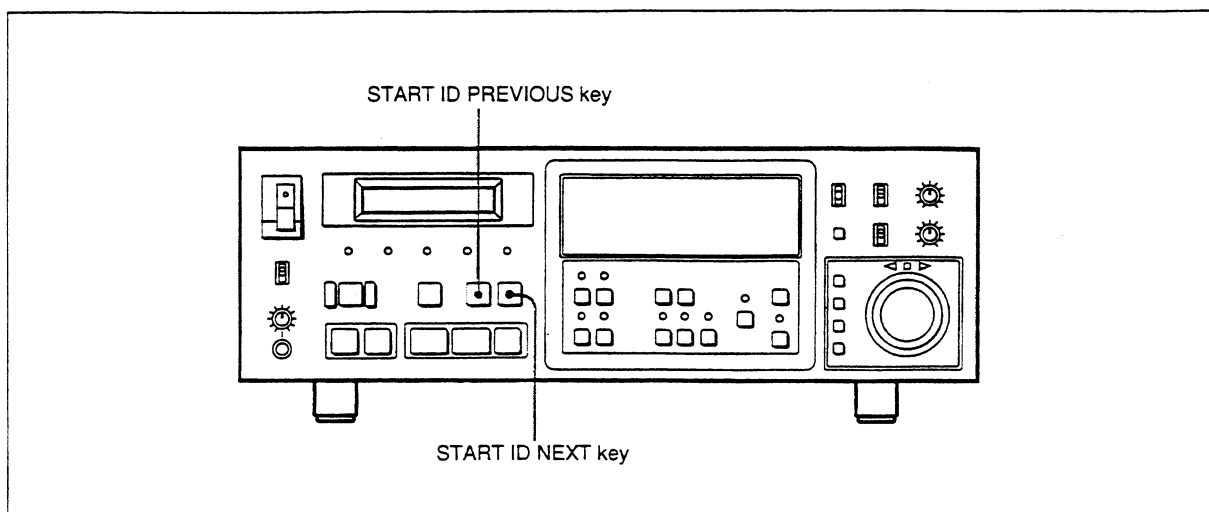
If you want to start playback right after location, press the PLAY key when you press the LOCATE key, or during the search operation.

Start ID search operation — ID locate

This section explains how to search for the Start ID that has been recorded on the tape beforehand.

See the section under "Writing and erasing Start ID" (page 4-11) for how to write the Start ID.

ID locate



ID locate

PREVIOUS: Locates the previous Start ID as you press the key.

NEXT: Locates the next Start ID as you press the key.

Press the START ID NEXT key or START ID PREVIOUS key.

The unit displays the "P -- --" on the display. The "--" after the "P" means the Program number of the present point. The "--" after the "P --" means the Start ID which is to be located.

While locating mode, the unit displays the Program Number on the tape after the "P". The meaning of "--" after the "P --" is shown below:

"01": Means the next Start ID.

"-00": Means the Start ID of the present point.

"-01": Means the Start ID of the previous Program Number.

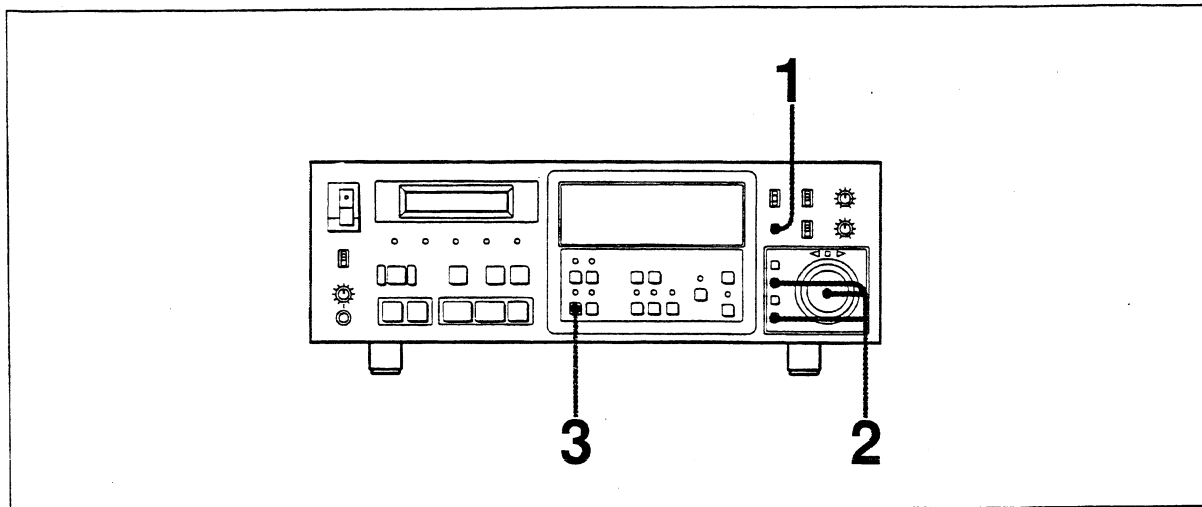
If you want to start playback right after locating to the point, press the PLAY key with the START ID NEXT or PREVIOUS key, or while the unit is searching for the point.

Locating Program Number—PROGRAM NUMBER LOCATE

The unit locates to the Program Number which is recorded on the tape.

For details about writing the Program Number, see the section on "Writing/erasing the Program Number" (page 4-14) in Section 4-1-6 "Basic Recording Procedure".

Locating procedure




Locating Program number

- 1** Press the DISPLAY key and set the display to "P- - L01".
When you press the PLAY key, the unit plays and displays the present Program Number after the "P".
- 2** Turn the shuttle dial while holding the DATA key down to select the Program Number to be located.
The setting of the Program Number is available when in both play and stop mode. The selected Program Number is displayed after "L".
To increase the Program Number: Turn the shuttle dial clockwise.
To decrease the Program Number: Turn the shuttle dial counterclockwise.
To reset the Program Number, press the RESET key while holding the DATA key down to display "L01".
- 3** Press the LOCATE key.
The unit locates the Start ID of the selected Program Number and stops the tape.

To play the tape immediately after locating, press PLAY key
during locating mode.

The unit can renumber the Program Number from the first Start ID.
*For details about renumbering the Program Number, see the section
on "Writing/erasing the Program Number" (page 4-14) in Section 4-
1-6 "Basic Recording Procedure".*

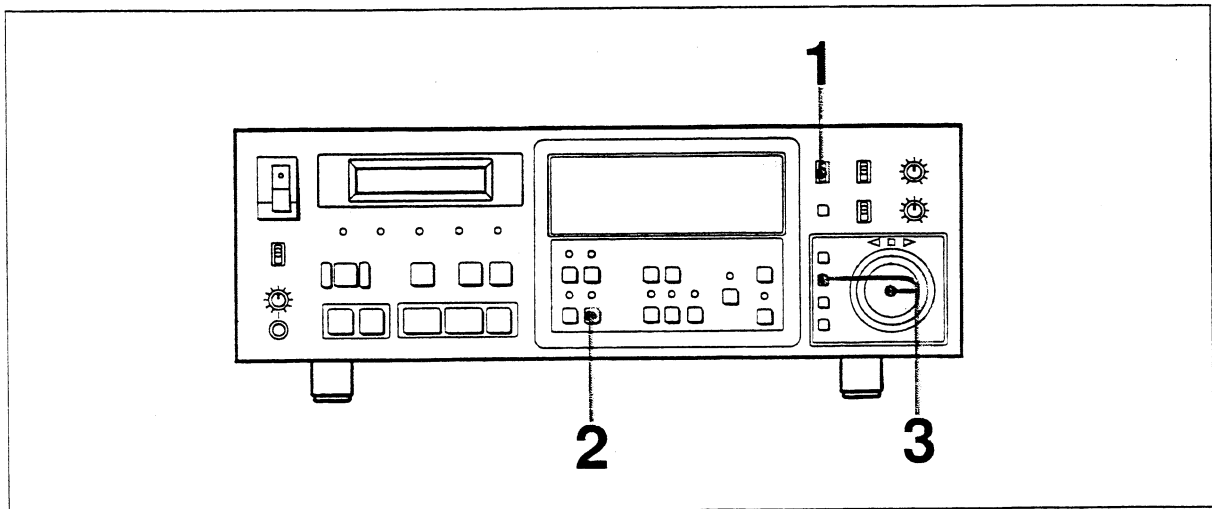
**To set the Program Number of the locate point using the MARK
key** 

When the unit is in the play mode or in the stop mode, pressing the
MARK key sets the Program Number of the present point. By
pressing the MARK key again, the unit sets the new Program Number.

4-3. Advanced Operations

4-3-1. Controlling the Playback Speed — Variable-Speed Playback

Using the shuttle dial, you can change the playback speed. Variable-speed playback is possible within a range from -12.5% to $+12.5\%$ (in increments of 0.1%) of normal playback speed when the SYNC signal selector is set to "INT". When the SYNC signal selector is set to "VIDEO" from -12.4% to $+12.4\%$ (in increments of 0.2%) of normal playback speed. You can operate either in the playback or stop mode. To change the speed with the shuttle dial, it is easier if you operate in the playback mode.



Controlling the playback speed

- 1** Check that the SYNC signal selector is set to "INT" or "VIDEO".
(To select "VIDEO", there must be a video sync signal from the REF VIDEO INPUT connector on the connector panel coming.)
- 2** Press the VARI SPEED key.
The indicator lights, and the unit goes into the variable-speed playback mode.
- 3** Turn the shuttle dial while pressing the DATA key.
If you turn the dial clockwise: the playback speed increases.
If you turn the dial counterclockwise: the playback speed decreases.
The current speed displays in the input/set data display area.
Monitor the speed using the display and the playback sound.
Stop the dial at the desired speed.

To set the speed to “00.0%” (normal speed) within the variable-speed playback mode

Follow one of the procedures below to set the speed to “00.0%”.
(Even if the tape is at the normal playback speed, the unit is still in the variable-speed mode.)

- Turn the shuttle dial till the display in the input/set data display area shows “00.0%”, or
- Press the DATA key and the RESET key at the same time.

To release the variable-speed playback mode

Press the VARI SPEED key.

The indicator goes off and the unit returns to the normal playback mode. In variable-speed playback mode, the last speed you set remains in effect. When you turn the unit on again, this speed remains until you set a new speed.

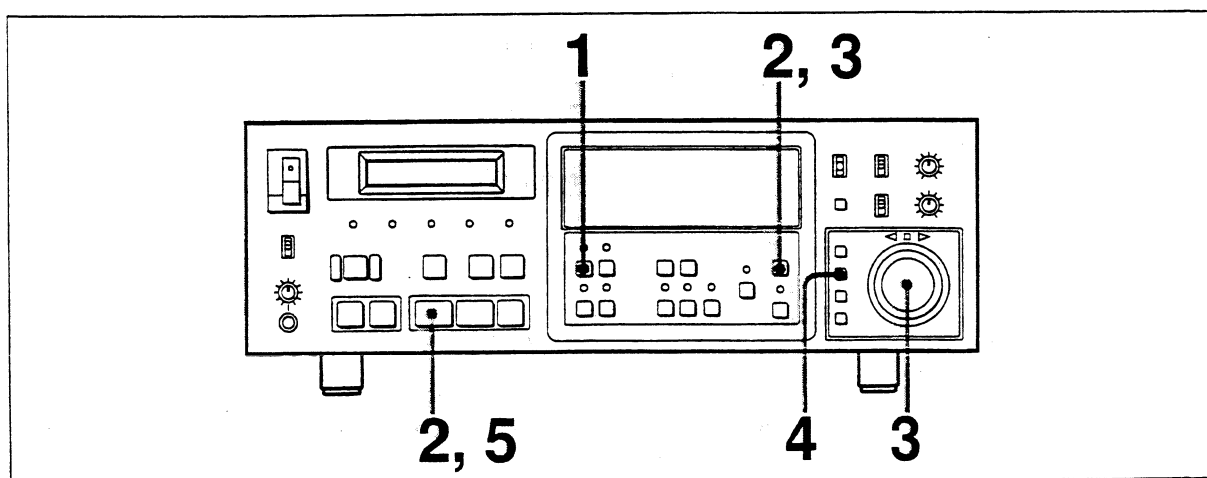
Note

You cannot record in the variable playback mode.

4-3-2. Outputting Playback Signals Immediately after Pressing the PLAY Key (with DABK-7012 Memory Start Option Installed in the Unit) — Memory Start Function

The PCM-7010 is able to output the playback signal immediately after you press the PLAY key when a DABK-7012 is installed. Using this Memory start function the unit first outputs the sound stored in the sound memory. Then the unit stores the playback signal in the sound memory and reproduces after the previous data from its memory. In this way, this unit outputs the audio signal accurately and instantly.

Memory start



Memory start

- 1** Press the MEMORY START key in the stop mode.
The indicator flashes and the PCM-7010 enters the memory start mode.
- 2** Play back the tape, and press the MARK key at the desired point.
The tape stops at the pressed point after storing the sound in memory.
The PLAY key flashes.
When you press the PLAY key, the sound in memory plays back
To find the precise start point, press the DATA key to rehearse the sound in memory, then to step **3**. (The tape doesn't move during the memory rehearsal.)
- 3** Using the shuttle dial, find the precise start point, then press the MARK key.
- 4** Press the DATA key to rehearse the sound in the memory.
If you want to change the start point again, repeat step **3** (Memory shuttle).
- 5** Press the PLAY key to play back the tape.
The MEMORY START indicator and the PLAY key light.

Notes

- To carry out Memory start, make sure that the time code is recorded on the tape.
- The time code which appears in the tape time display area of the display indicates the real position of the tape. During the playback using memory start function, the time code shown on the display is a little ahead of the time code corresponding to the playback sound.
- While the MEMORY START indicator is on (in the playback operation in the memory start mode), the MARK key works to set a locate point and the time code displayed in the tape time display area appears in the input/set data display area when you press the MARK key.

The capacity of the sound memory

The capacity of the sound memory differs from the sampling frequency as shown in the table below.

Sampling frequency	Capacity
48 kHz	2.73 seconds
44.1 kHz	2.97 seconds
32 kHz	5.46 seconds

When you reset the start point

After setting the start point, you may want to reset the start point using the MARK key. If you want to deviate from the range in the table above, this unit will restore the new sound data in the memory. Note that this operation may take about 10 seconds.

Adjusting the output timing of the memory start

In the range of 0 to 500 milliseconds, you can select the time required by the unit to output the sound after you press the PLAY key.

See the section on "iS dLY-t (MEMORY START DELAY TIME)" (page 5-73) in Section 5-3-2 "Setup Menu" for more details.

Releasing the memory start mode

1 Press the STOP key to stop playback.

2 Press the MEMORY START key.

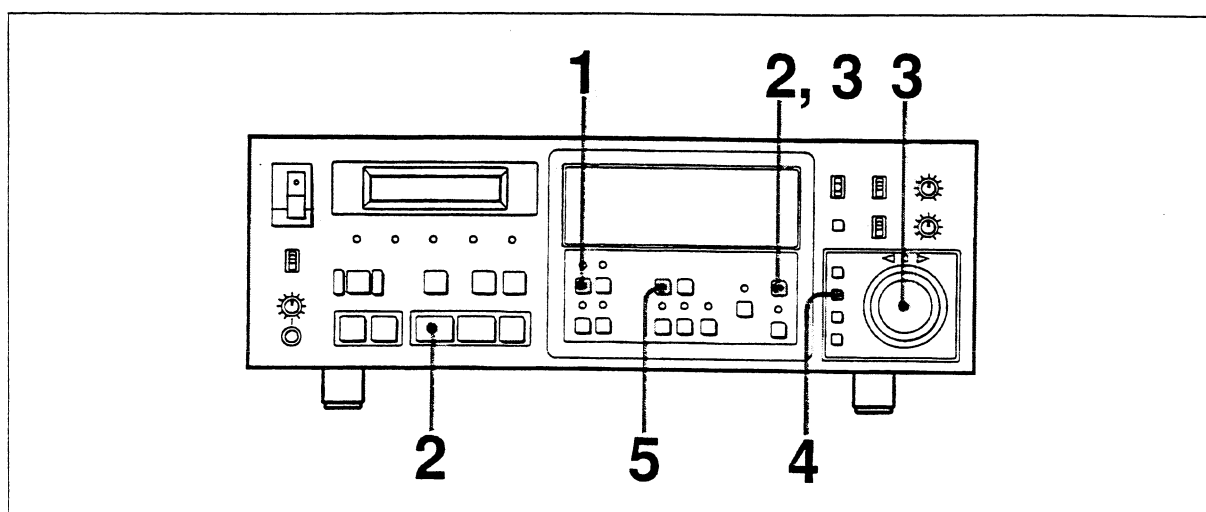
The indicator goes off and the unit exits memory start mode.

Using the memory start function together with the search operation

If you conduct the search operation using the LOCATE key or the START ID NEXT/PREVIOUS key in the memory start mode, the tape goes to the locate point immediately, and automatically stores the sound data around that point into the sound memory. When the unit enters the memory start standby mode, it operates in the same way as the normal memory start.

Using the memory start function when writing Start ID

Using the memory start function, you can write Start ID more precisely.



Writing Start ID

Record mode setting: INSERT SUB

- 1** Press the MEMORY START key when the unit is in the stop mode.
The indicator flashes and the unit enters the memory start mode.
- 2** Play back the tape and press the MARK key at the point where the Start ID is to be written.
The tape stops after running a short while, and the PLAY key flashes.
- 3** Find the precise point you want to write the Start ID using the search dial, and press the MARK key at that point.
- 4** Press the DATA key for memory rehearsal and check the sound.
If the selected point where you are going to write the Start ID is not proper, repeat step **3**.
- 5** Press the START ID WRITE key.
The tape starts playback again after rewinding.
The REC key and the PLAY key light from the point set by the MARK key, and the unit writes the Start ID.
The tape stops automatically after recording.

Chapter 5. Menu Operations

The changeable functions of this unit have been factory-set to default positions.

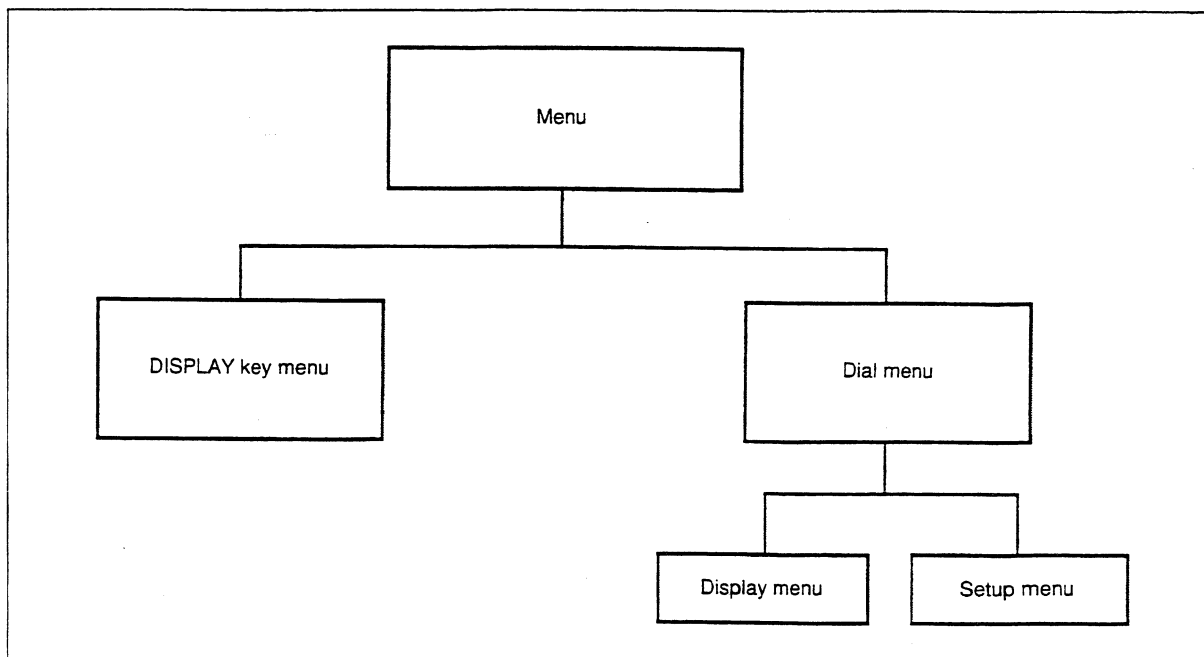
This chapter explains how to change the default settings (factory-settings) using the search dial. Read through this chapter if you want to change the default settings. Then read the "Dial Menu Operations" section.

5-1. About the Menus	5-1
5-2. DISPLAY Key Menu Operations	5-13
5-3. Dial Menu Operations	5-30

5-1. About the Menus

5-1-1. General Description of the Menus

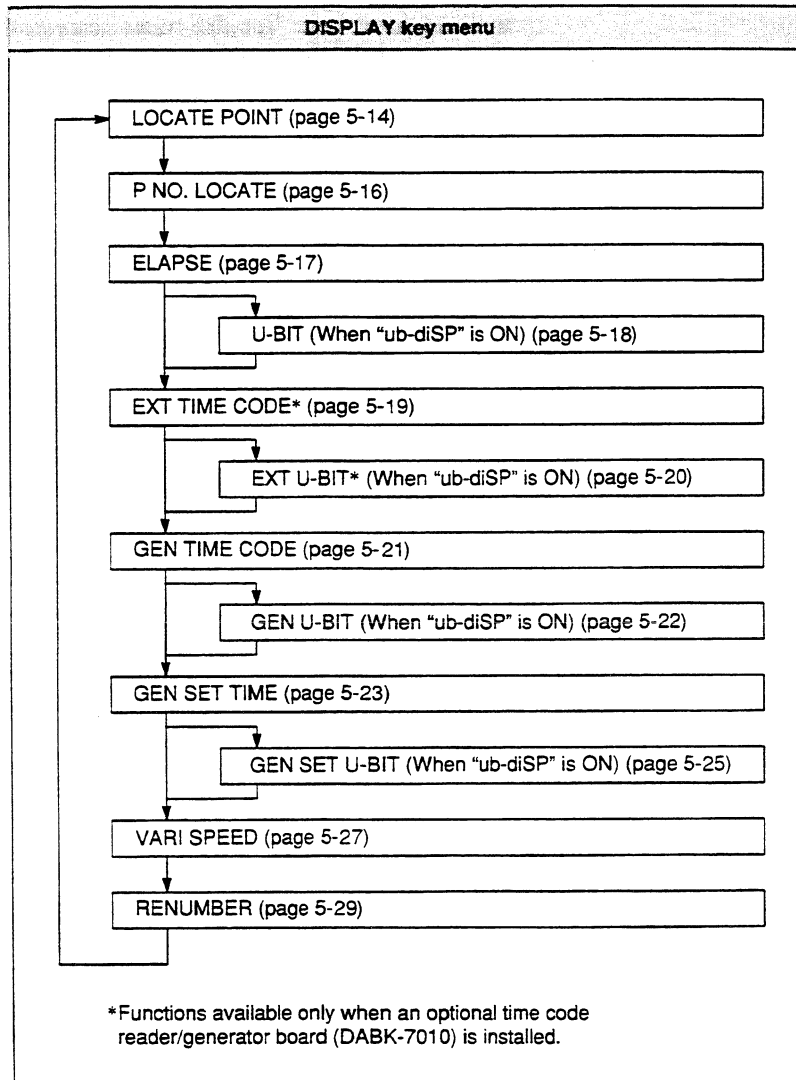
The menus available with this unit are categorized into two groups. One is the DISPLAY key menu and the other the dial menu. The dial menu is further divided into two groups: display menu, and setup menu. The DISPLAY key menu changes the displayed contents using the DISPLAY key. The dial menu changes the settings of the functions of the PCM-7010 using the shuttle dial. The following chart shows the menu configuration.



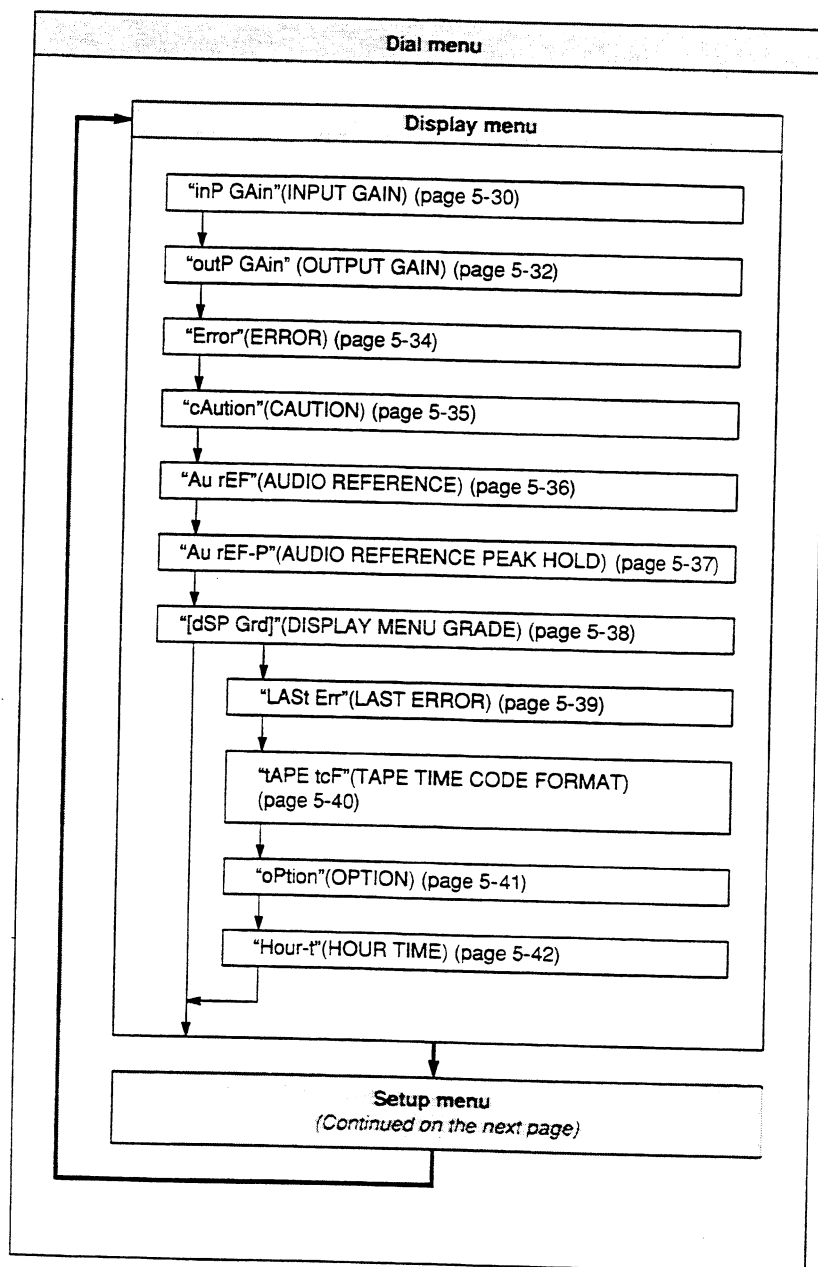
Menu configuration

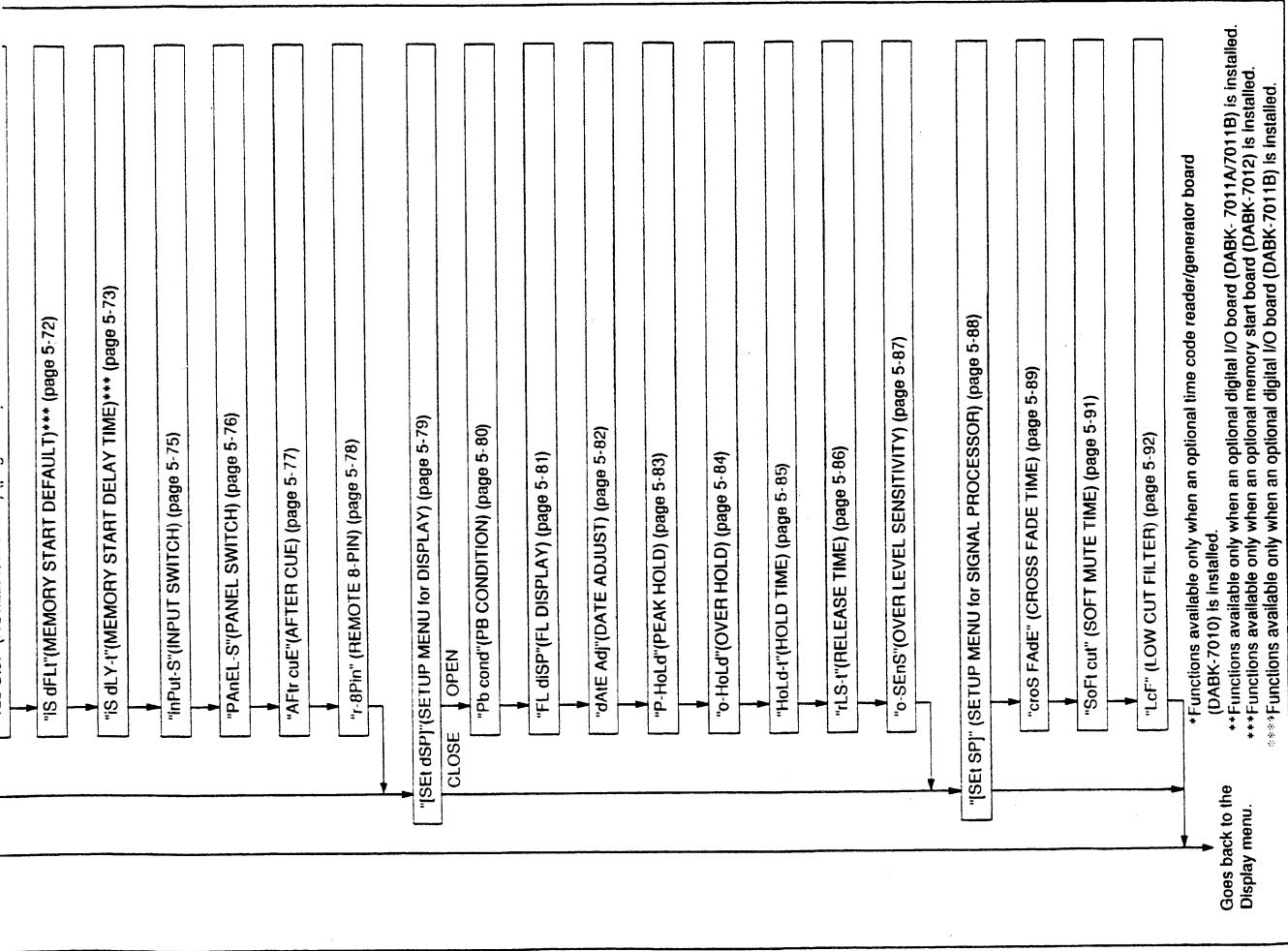
The following charts list the DISPLAY key menu and the dial menu (display menu and setup menu). See Section 5-1-2 "Menu List" (page 5-5) for a general description of each menu. For the details of each menu, see the referred pages within each menu list that appears on the following pages 5-2 through 5-4.

DISPLAY key menu

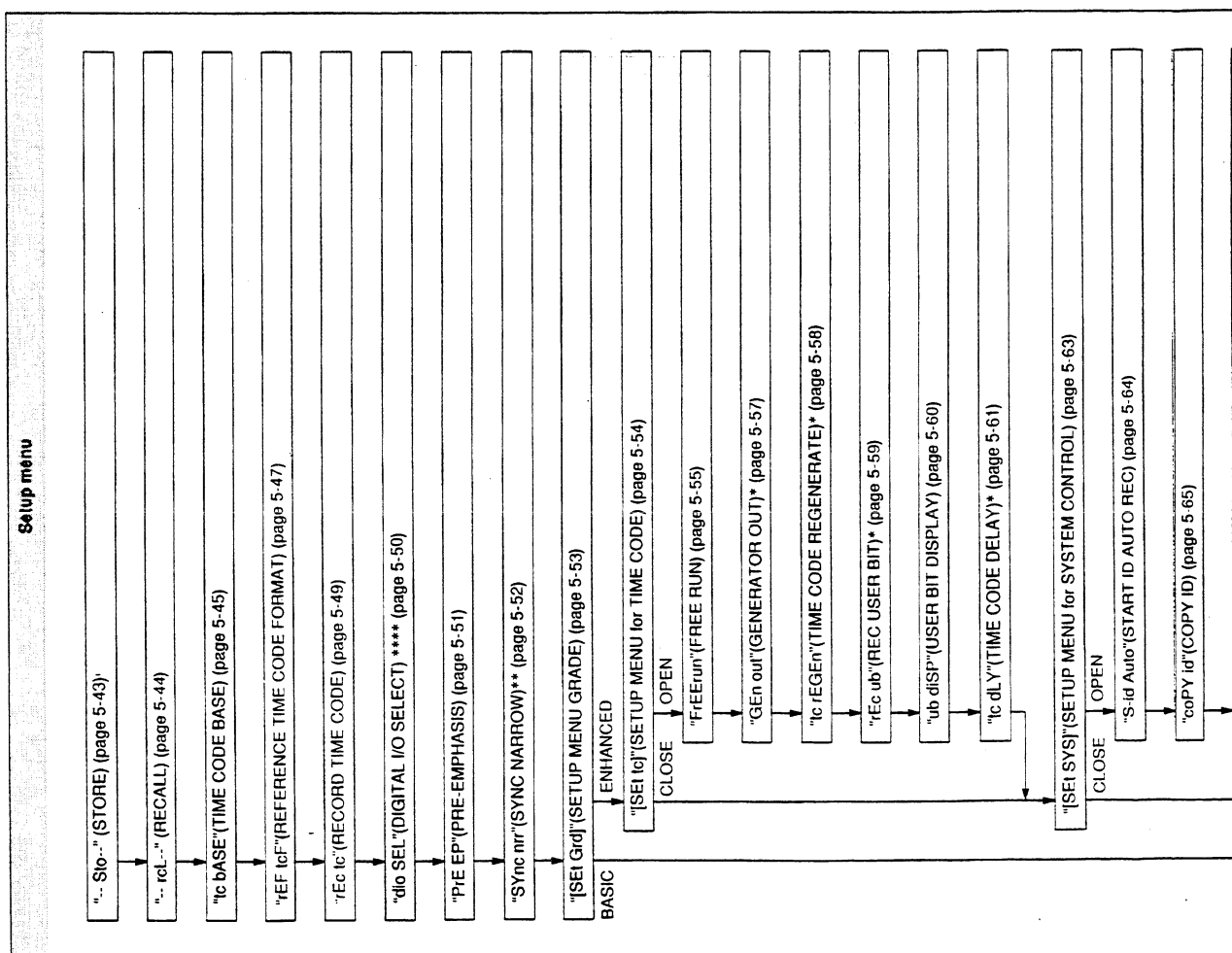


Dial menu





Setup menu



5-1-2. Menu List

DISPLAY key menu

The following table shows the functions of the DISPLAY key menu.

DISPLAY key menu

DISPLAY key menu	Functions	The conditions required to activate the menu
LOCATE POINT	Sets the time code of the locate point for the time code locate operation.	—
P NO. LOCATE	Locates the Program Number recorded on the tape.	When the Program Number is recorded on the tape.
ELAPSE	Displays the tape running time (elapsed time). You can reset this value using the RESET key.	—
U-BIT	Displays the user bit read from the tape during playback.	When “ub diSP” is set to “on” (ON)
EXT TIME CODE	Displays the external time code input to the unit.	When a DABK-7010 is installed
EXT U-BIT	Displays the user bit of the external time code input to the unit.	When a DABK-7010 is installed and “ub diSP” is set to “on” (ON)
GEN TIME CODE	Displays the internal generator time code.	—
GEN U-BIT	Displays the user bit of the internal generator time code.	When “ub diSP” is set to “on” (ON)
GEN SET TIME	Sets the start time value of the internal time code generator.	—
GEN SET U-BIT	Sets the contents of the user bit of the internal time code generator.	When “ub diSP” is set to “on” (ON)
VARI SPEED	Sets the tape speed for variable-speed playback, and displays the set data.	—
RENUMBER	Writes the Program Number from the first Start ID of the recorded tape. When the Program Number is already written on the tape, renumbers the Program Number from the top of the tape.	When the Program Number or the Start ID is recorded on the tape.

Dial menu

The following lists the functions of the display menu and setup menu. These are subset menus of the dial menu.

Display menu

Display menu		Functions	The condition required to use the menu
The display that appears	Meaning of the display		
"inP GAIN"	INPUT GAIN	Sets the gain for the analog input signal and the digital input signal, and displays the set gain value.	—
"outP GAIN"	OUTPUT GAIN	Sets the level for the analog output signal and the digital output signal, and displays the set value.	—
"Error"	ERROR	Displays the errors of the unit using numbers.	—
"cAution"	CAUTION	Displays the warnings of the unit using numbers.	—
"Au rEF"	AUDIO REFERENCE	Displays the signal level readings of the level meters using numbers.	—
"Au rEF-P"	AUDIO REFERENCE PEAK HOLD	Displays the peak hold level readings of the level meters using numbers.	—
"[dSP Grd]"	DISPLAY MENU GRADE	Selects the level of the menu display from basic display and expanded display. bASic : Sets to the basic display. Goes directly to the setup menu. EnHAnCED : Sets to the expanded display. This setting displays from "LAsT Err" to "Hour-t". Factory-set setting : "bASic"(BASIC)	—
"LAsT Err"	LAST ERROR	Displays the last time code which indicates the tape position where an error occurred and the erroneous data was interpolated or the audio output signals were muted.	Displays when the display menu level is set to "EnHAnCED" (ENHANCED).
"tAPE tCF"	TAPE TIME CODE FORMAT	Displays the format of the time code recorded on the tape.	Displays when the display menu level is set to "EnHAnCED" (ENHANCED).
"oPtion"	OPTION	Displays which one or more optional boards have been installed in the unit.	Displays when the display menu level is set to "EnHAnCED" (ENHANCED).
"Hour-t"	HOUR TIME	Displays the accumulated head drum rotation hours (hours meter). Refer to this display to determine when to replace the head drum.	Displays when the display menu level is set to "EnHAnCED" (ENHANCED).

Setup menu

Setup menu		Functions	Factory-set position	The condition required to use the menu
The display that appears	Meaning of the display			
"-- Sto--"	STORE	Stores the set data from the setup menu to addresses 1 through 10. You can operate the unit using one of these 10 settings (the data stored in addresses 1 through 10).	—	Prior to storing the data, set the necessary data from the setup menu.
"-- rcL--"	RECALL	You can recall each data set from the "-- Sto--" menu using the appropriate address number, and operate the unit according to the data. The recalled address remains in memory even when power is off. When the unit is turned on, that address is assigned automatically.	"FactorY"	—
"tc bASE"	TIME CODE BASE	Selects the basis of the time code, which appears in the tape time display area on the display and is used for locate operation. Also, displays the time data on the recorded tape or the present time of the internal clock.	"Auto"(AUTO)	—
"rEF tcF"	REFERENCE TIME CODE FORMAT	Selects the time code format and reference video sync signal frequency.	SMPTE (drop frame mode), 29.97 Hz for the model for the USA and Canada, or EBU, 25 Hz for the model for European countries	—
"rEc tc"	RECORD TIME CODE	Selects the recording time code whether the time code generated in the unit or the one input to the TIME CODE INPUT connector at the rear.	"int" (INTERNAL)	Displays when a DABK-7010 is installed.
"dio SEL"	DIGITAL I/O SELECT	Selects the audio signal format for digital input/output (SDIF-2 format or others).	"otHERs" (OTHERS) (AES/EBU or IEC 958 format)	Displays when a DABK-7011A/7011B is installed.
"PrE EP"	PRE-EMPHASIS	Activates (ON) or deactivates (OFF) the emphasis circuit for analog input signals.	"oFF"(OFF)	—
"SYnc nrr"	SYNC NARROW	Selects the frequency range to which the word sync (external sync mode synchronized with D-I sync or word sync) can lock.	"on"(ON)	Displays when a DABK-7011A/7011B is installed.
"[SEt Grd]"	SETUP MENU GRADE	Selects the level of the setup menu display from basic display and expanded display.	"bASic"(BASIC)	—

Setup menu when using the expanded menu display

Setup menu		Functions	Factory-set position	The condition required to use the menu
The display that appears	Meaning of the display			
“[SEt tc]”		Selects whether to open or close the time code menu in the setup menu.	“cLoSE” (CLOSE)	Displays when the level of the setup menu is set to “EnHAnCEd” (ENHANCED).
When using the expanded menu for the time code	“FrEErun”	Selects the operation mode of the time code generator (REC RUN/REGEN or FREE RUN).	“oFF”(OFF) (REC RUN/REGEN mode)	Displays when the level of the setup menu is set to “EnHAnCEd” (ENHANCED) and when the setup menu for the time code is set to “oPEn”(OPEN).
	“GEn out”	Selects the time code (selects the playback time code when OFF and selects the generator’s time code when ON) output from the TIME CODE OUTPUT connector at the rear.	“oFF”(OFF)	Displays when the level of the setup menu is set to “EnHAnCEd” (ENHANCED) and when the setup menu for the time code is set to “oPEn”(OPEN) when a DABK-7010 installed.
	“tc rEGEn”	Selects whether to regenerate the external time code (ON) or not (OFF).	“on”(ON)	Displays when the level of the setup menu is set to “EnHAnCEd” (ENHANCED) and when the setup menu for the time code is set to “oPEn”(OPEN) when a DABK-7010 installed.
	“rEc ub”	Selects the user bit according to the setting of the “rEc tc (RECORD TIME CODE)” in the setup menu or the user bit of the internal time code generator (INTERNAL) when recording.	“tc SEL” (TC SEL)	Displays when the level of the setup menu is set to “EnHAnCEd” (ENHANCED) and when the setup menu for the time code is set to “oPEn”(OPEN) when a DABK-7010 installed.
	“ub diSP”	Selects whether to display the user bit data for the DISPLAY key menu (ON) or not (OFF).	“oFF”(OFF)	Displays when the level of the setup menu is set to “EnHAnCEd” (ENHANCED) and when the setup menu for the time code is set to “oPEn”(OPEN)
	“tc dLY”	Selects whether to apply the phase adjustment of the time code output to the analog audio signals (ANALOG OUTPUT) or digital audio signals (DIGITAL OUTPUT).	“d out” (DIGITAL OUTPUT)	Displays when the level of the setup menu is set to “EnHAnCEd” (ENHANCED) and when the setup menu for the time code is set to “oPEn”(OPEN) when a DABK-7010 installed.
“[SEt SYS]”		Selects whether to open the setup menu of the system (OPEN) or not (CLOSE).	“cLoSE” (CLOSE)	Displays when the level of the setup menu is set to “EnHAnCEd” (ENHANCED).

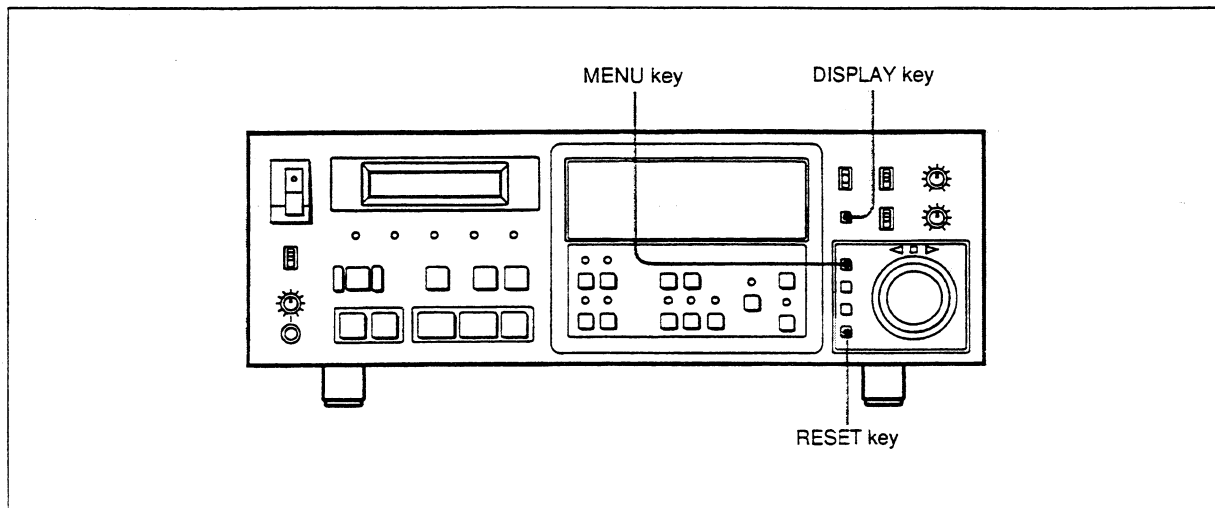
Setup menu		Functions	Factory-set position	The condition required to use the menu	
The display that appears	Meaning of the display				
When using the expanded menu for the system control	"S-id Auto"	START ID AUTO REC	Selects whether to automatically write the Start ID (ON) or not (OFF) during assemble recording.	"oFF" (OFF)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu for the system is set to "oPEn".
	"coPY id"	COPY ID	Selects the copy ID which will be recorded within the main ID.	"PEr" (PERMIT) (ID which permits copy)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu for the system is set to "oPEn". Rules for performing digital copying in the IEC958 format are based on those of the Serial Copy Management System. In this case, "coPY id" menu is invalid.
	"dAtEAuto"	DATE AUTO REC	Selects whether or not to automatically write the time data during assemble recording.	"oFF" (OFF)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu for the system is set to "oPEn".
	"SYncPb"	SYNC PB	Selects whether to synchronize the playback time code with the phase of the input video sync signal or not during playback when an external video sync signal is input to the REF VIDEO INPUT connector and when the time code format is not set to film time code.	"EnAbLE" (ENABLE) (Synchronizes the phases.)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu for the system is set to "oPEn" when a DABK-7010 installed.
	"rLb StoP"	ROLLBACK STOP	Selects whether to stop with roll back (ON) or not (OFF) when the tape stops in the assemble recording mode.	"on"(ON)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu for the system is set to "oPEn".
	"iS dFLt"	MEMORY START DEFAULT	Selects whether to activate the memory start when power-on (ON) or not (OFF).	"oFF"(OFF)	Displays when a DABK-7012 is installed, when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu for the system is set to "oPEn".
	"iS dLY-t"	MEMORY START DELAY TIME	Selects the delay time to output the sound after pressing the PLAY key for the memory start playback.	"0"(Without delay)	Displays when a DABK-7012 is installed, when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu for the system is set to "oPEn".
	"inPut-S"	INPUT SWITCH	Selects whether to accept the command from the INPUT MONITOR key (ENABLE) or not (DISABLE) when the tape is played back in the local mode. This setting will prevent misoperations during on-air.	"EnAbLE" (ENABLE)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu for the system is set to "oPEn".
	"PAnEL-S"	PANEL SWITCH	Selects whether to accept the command from the tape transport control keys on the front panel (ENABLE) or not (DISABLE) when playback in the local mode. This setting will prevent misoperations while controlling the fader controller.	"EnAbLE" (ENABLE)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu for the system is set to "oPEn".

Setup menu		Functions	Factory-set position	The condition required to use the menu	
The display that appears	Meaning of the display				
"AFtr cuE"	AFTER CUE	Selects whether to shift the mode to STOP mode (STOP) or PLAY mode (PLAY) after exiting the cue mode by pressing the CUE key during cue mode.	"StoP" (STOP)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu for the system is set to "oPEn".	
"r-8Pin"	REMOTE 8-PIN	When connecting the fader controller to the REMOTE (8P) connector of the unit, selects the PLAY COMMAND mode or the PLAY STOP COMMAND mode.	"PLAY"	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu of the display is set to "oPEn".	
"[SEt dSP]"	SETUP MENU for DISPLAY	Selects whether to open the display menu in the setup menu (OPEN) or not (CLOSE).	"cLoSE" (CLOSE)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED).	
When using the expanded menu for the display	"Pb cond"	PB CONDITION	Selects the condition that turns the PB CONDITION indicators on in the front panel.	"bad cond" (BAD CONDITION)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu of the display is set to "oPEn".
	"FL diSP"	FL DISPLAY	Adjusts the brightness of the display on the front panel.	"d-1" (DUTY-1) (maximum)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu of the display is set to "oPEn".
	"dAtE AdJ"	DATE ADJUST	Sets the time of the internal clock. According to this setting, the unit records the time data.	Japan time	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu for the display is set to "oPEn".
	"P-HoLd"	PEAK HOLD	Selects the peak hold mode of the level meters.	"Auto" (AUTO)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu of the display is set to "oPEn".
	"o-HoLd"	OVER HOLD	Selects the hold mode of the "OVER" segments of the level meters.	"on"(ON) (the indication of the "OVER" segments follows the peak hold mode)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu of the display is set to "oPEn".
	"HoLd-t"	HOLD TIME	Selects the peak level hold time of the level meters.	"1_5" (1.5 seconds)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu of the display is set to "oPEn".
	"rLS-t"	RELEASE TIME	Selects the release time for the level meters.	"50" (50 milliseconds)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu of the display is set to "oPEn".
	"o-SEnS"	OVER LEVEL SENSITIVITY	Selects the level detection sensitivity that lights the "OVER" segments of the level meters.	"4"(4-word)	Displays when the level of the setup menu is set to "EnHAnCEd" (ENHANCED) and when the setup menu of the display is set to "oPEn".

Setup menu		Functions	Factory-set position	The condition required to use the menu
The display that appears	Meaning of the display			
"[SEt SP]"	SETUP MENU for SIGNAL PROCESSOR	Selects whether to open the setup menu for the signal processor (OPEN) or not (CLOSE).	"cLoSE" (CLOSE)	Displays when the level of the setup menu is set to "EnHancEd" (ENHANCED).
When using the expanded menu for the signal processor	"croS FAdE"	CROSS-FADE TIME Selects the cross-fade time during punch-in recording in the SYNC REC mode.	"10" (10 msec.)	Displays when the level of the setup menu is set to "EnHancEd" (ENHANCED) and when the setup menu for the signal processor is set to "oPEn".
	"SoFt cut"	SOFT MUTE TIME Selects the soft mute time at the point where the muting starts and releases.	"05" (5 msec.)	Displays when the level of the setup menu is set to "EnHancEd" (ENHANCED) and when the setup menu for the signal processor is set to "oPEn".
	"LcF"	LOW CUT FILTER Selects whether to operate the low cut filter (ON) or not (OFF).	"oFF" (OFF)	Displays when the level of the setup menu is set to "EnHancEd" (ENHANCED) and when the setup menu for the signal processor is set to "oPEn".

5-1-3. Setting the Display and Settings to the Default Values

When using the expanded menu, you will select many menus, usually sequentially. But you can go back quickly to the first menu if that saves time. You can also reset all the settings to the default (factory-set) values together.



Front panel

Setting the display back to the default condition

Press the DISPLAY key while holding the MENU key down. Doing this operation sets the display back to the tape time in the tape time display area and "LOCATE POINT" time code data in the input/set data display area. At the same time, doing this operation sets the dial menu back to the "inP GAIN" menu though its menu display does not appear on the display.

Setting back to the factory-set status

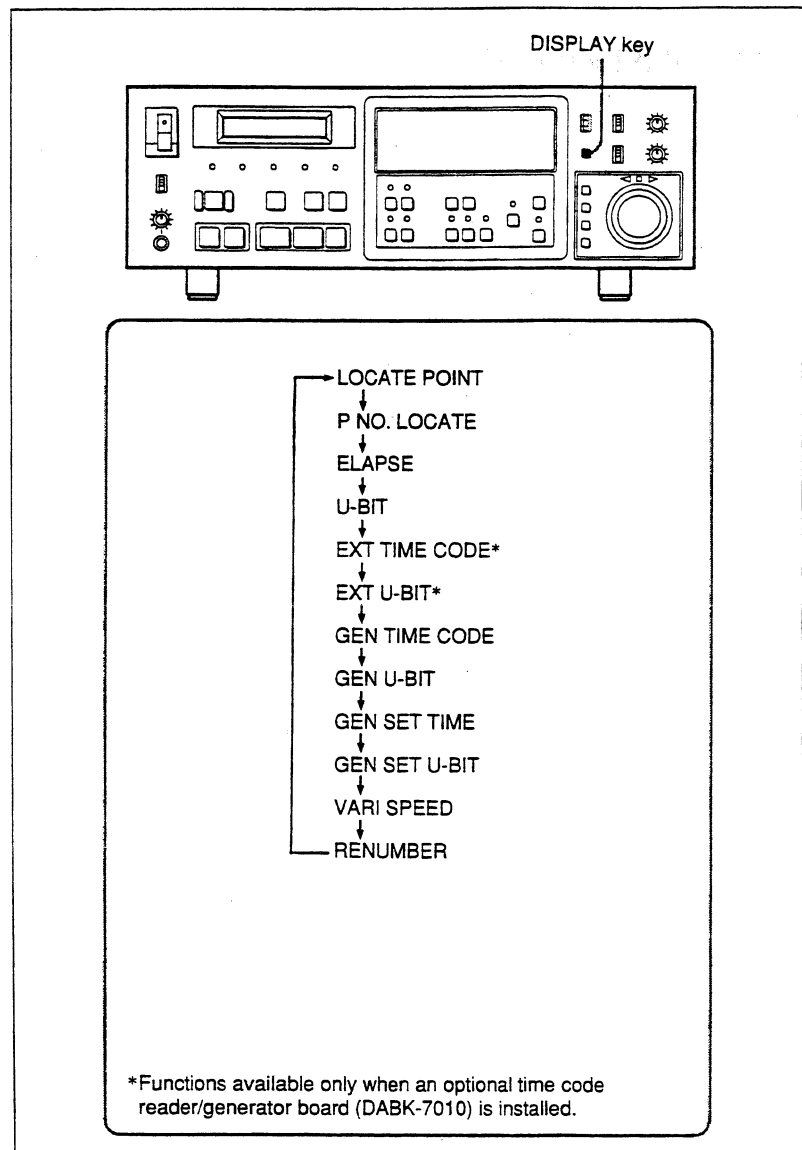
Set the display back to the factory-set (default) status if you cannot tell which menu you are operating in. If necessary, start the setting from the beginning.

- 1 Display an item of the setup menu.
- 2 Press the MENU key and the RESET key at the same time.
The tape direction lamps flash. The flashing lamps indicate the display is set back to the default status.

5-2. DISPLAY Key Menu Operations

5-2-1. About the DISPLAY Key Menu

The following ten items (menus) can be displayed in the input/set data display area on the display by pressing the DISPLAY key on the front panel. This function is called DISPLAY key menu.



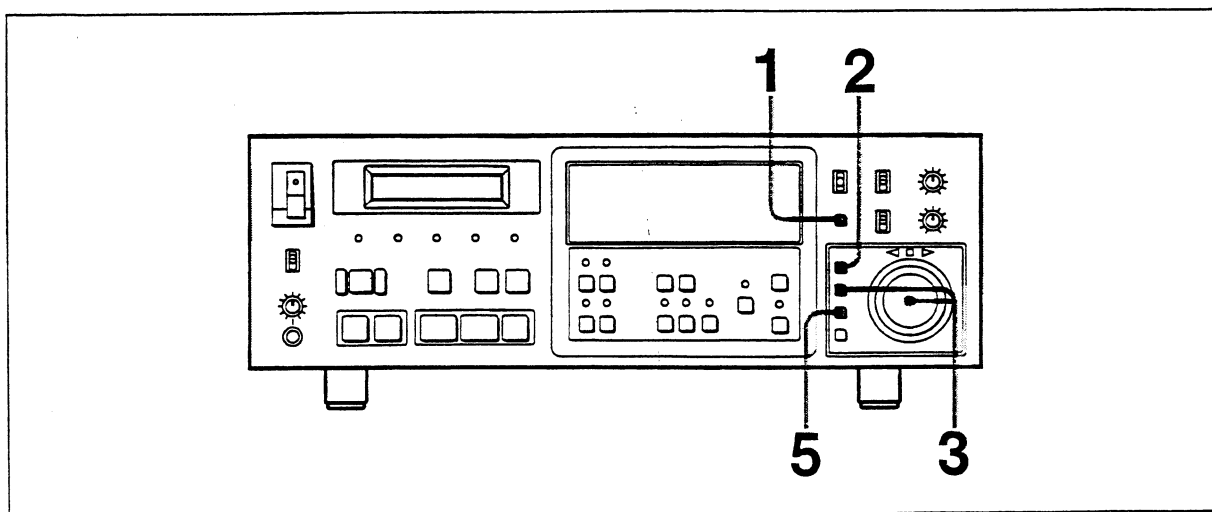
DISPLAY key menu

The following explains the functions available from each menu.

5-2-2. Setting the Desired Locate Point — LOCATE POINT

You set the time code for the locate point using the time code (time code locate operation). You can only set one locate point. Use the shuttle dial to set this. You can also set a locate point directly by pressing the MARK key.

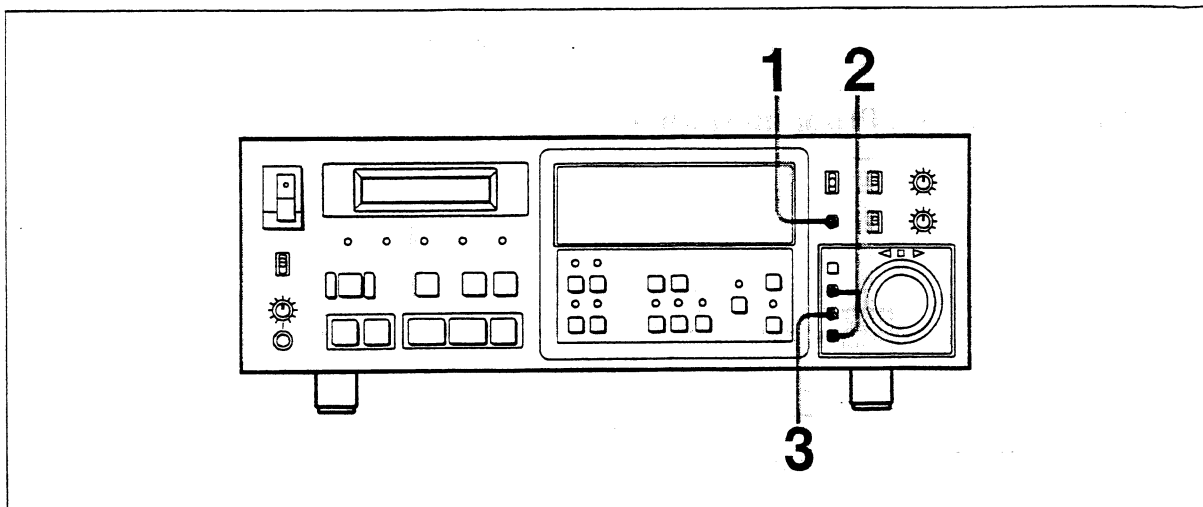
Setting the locate point



Setting the locate point

- 1** Press the DISPLAY key and set the display to "LOCATE POINT". This operation puts the unit in the locate point set mode.
- 2** Press the MENU key.
The displayed digit flashes and every time you press the key, the flashing digit moves to the right (H → M → S → F → H...).
- 3** Turn the shuttle dial while holding the DATA key down to set the data for the flashing digit.
To increase the number: Turn the shuttle dial clockwise.
To decrease the number: Turn the shuttle dial counterclockwise.
- 4** Repeat steps 2 and 3 until you complete the setting for all digits.
- 5** Press the SET key.
The flashing stops and the setting finishes.

Setting the locate point value back to "0" — How to reset



Resetting the locate point value

- 1** Press the **DISPLAY** key and set the display to "LOCATE POINT".
This operation puts the unit into the locate point set mode.
- 2** Press the **RESET** key while holding the **DATA** key down.
The numbers in all digits are set to "0"
- 3** Press the **SET** key.
The flashing stops and the locate point value is set to "0".

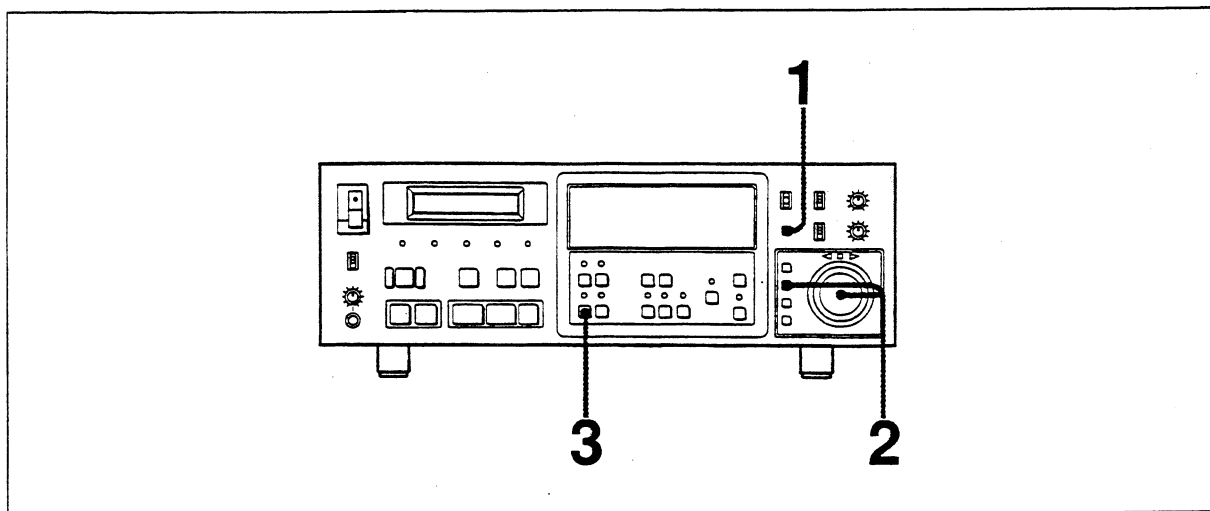
Locate point setting using the **MARK** key

When you press the **MARK** key during playback, the time code displayed in the tape time display area is recorded on the tape and displayed in the input/set data display area as the locate point. The displayed value changes every time you press the **MARK** key.

5-2-3 Locating the Program Number—P NO. LOCATE

The unit locates the Program Number which is recorded on the tape.

How to locate to the Program Number



Locating to the Program number

- 1** Press the **DISPLAY** key and set the display to "P- - L01".
When you press the **PLAY** key in this status, the unit plays and displays the present Program Number after the "P".
- 2** Turn the shuttle dial while holding the **DATA** key down to select the Program Number to be located.
The setting of the Program Number is available when in both play and stop mode. The selected Program Number is displayed after "L".
To increase the Program Number: Turn the shuttle dial clockwise.
To decrease the Program Number: Turn the shuttle dial counterclockwise.
To reset the Program Number, press the **RESET** key while holding the **DATA** key down to display "L01".
- 3** Press the **LOCATE** key.
The unit locates the Start ID of the selected Program Number and stops the tape.

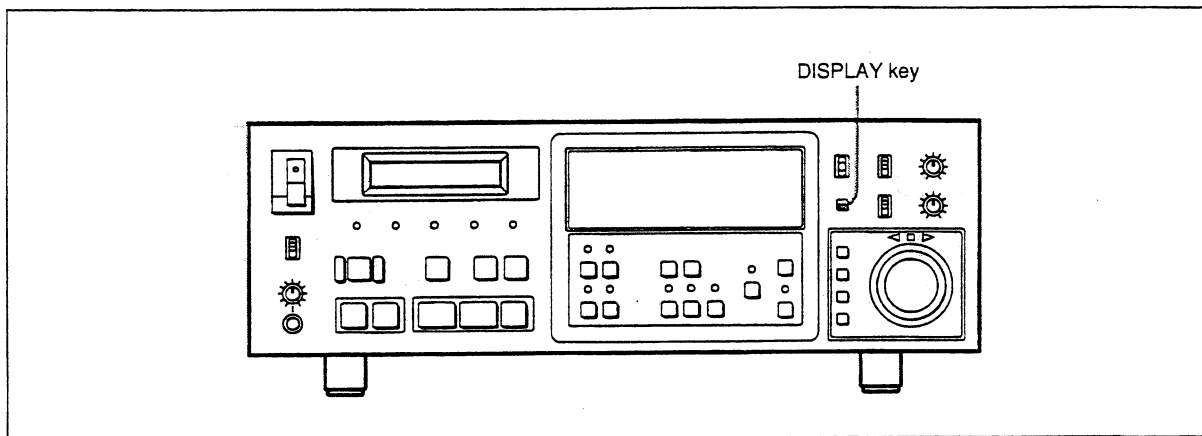
*For details about setting the Program Number with the **MARK** key, see the section on "Locating Program Number" (page 4-25) in Section 4-2-3 "Locating Specific Points on a Tape".*

For details about renumbering the Program Number, see the section on "Writing/erasing the Program Number" (page 4-14) in Section 4-1-6 "Basic Recording Procedure".

5-2-4. Displaying the Tape Run Time — ELAPSE

Displays the tape running time (elapsed time).

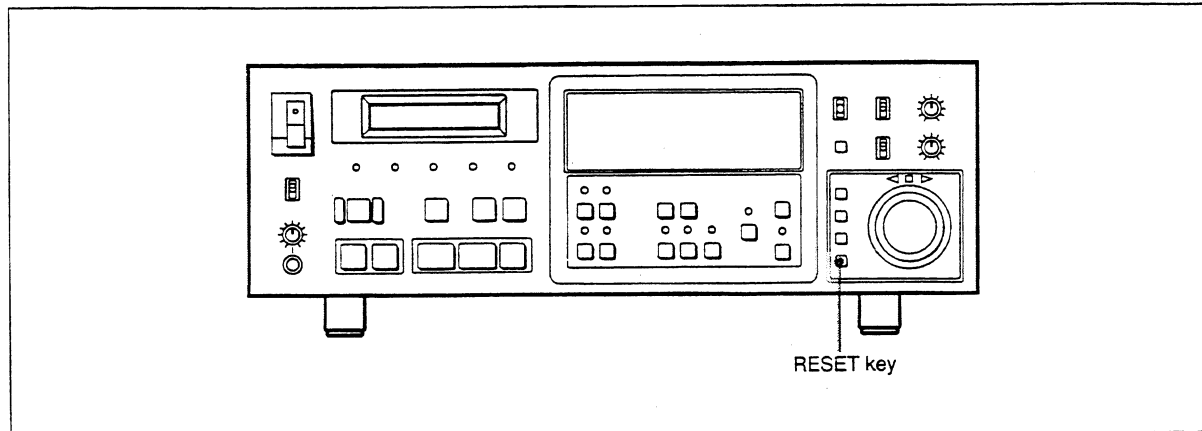
Displaying the elapsed time



Displaying the elapsed time

Press the DISPLAY key to set the display to "ELAPSE".
The elapsed tape time appears in the display.

Setting the display back to "0" — How to reset



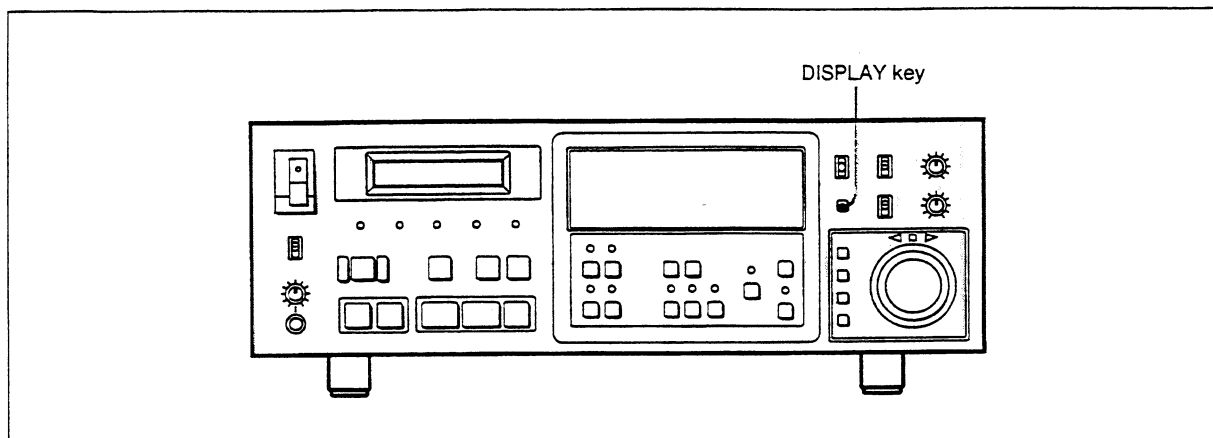
Resetting the display

Press the RESET key.
The display is reset to "00H00M00s00F".

5-2-5. Displaying the User Bit on the Playback Tape — U-BIT

Displays the user bit of the time code on the playback tape.

Displaying the user bit



Displaying the user bit

- 1** Set “ub-diSP”(USER BIT DISPLAY) to ON from the setup menu of the dial menu.

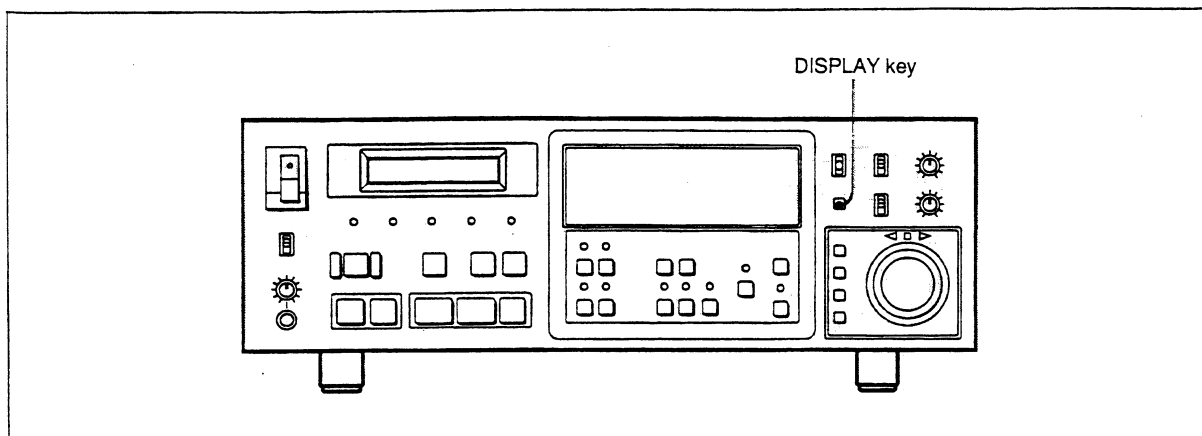
See the section on “ub diSP (USER BIT DISPLAY)” (page 5-60) in Section 5-3-2 “Setup Menu” for more details.

- 2** Press the DISPLAY key and set the display to “U-BIT”.
The user bit on the tape appears when the tape is played back.

5-2-6. Displaying the Input Time Code (when a DABK-7010 is installed) — EXT TIME CODE

Displays the external time code input to the unit.

Displaying the time code input to the unit



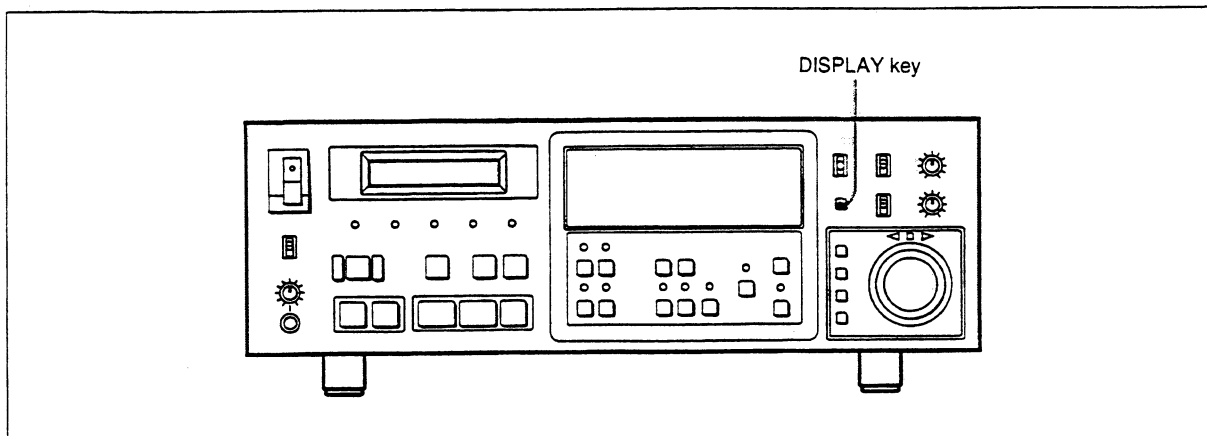
Displaying the time code input to the unit

Press the DISPLAY key and set the display to "EXT TIME CODE".
The external time code appears.

5-2-7. Displaying the User Bit of the External Time Code Input to the Unit (when a DABK- 7010 is installed) — EXT U-BIT

Displays the user bit of the external time code.

Displaying the user bit of the time code input to the unit



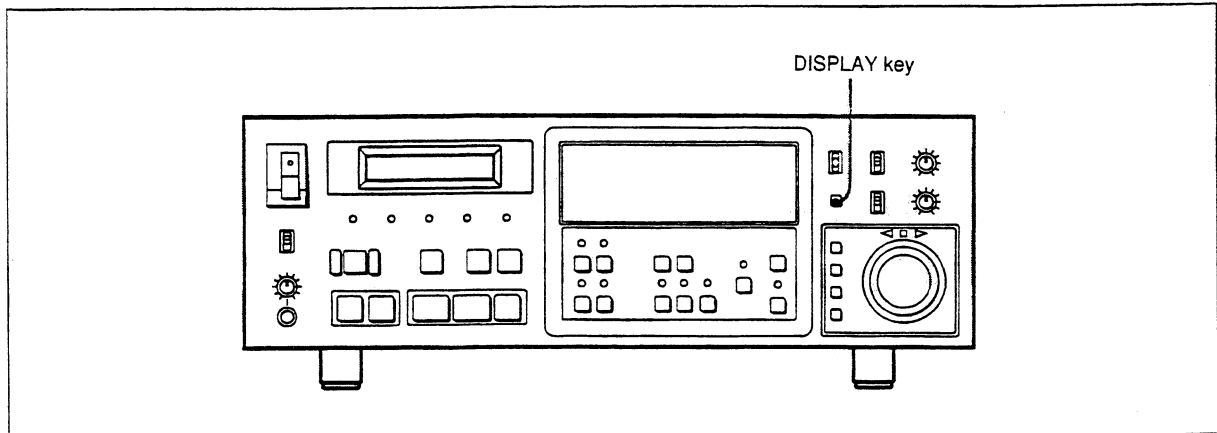
Displaying the user bit of the time code input to the unit

- 1** Set “ub-diSP” (USER BIT DISPLAY) to ON from the setup menu of the dial menu.
See the section on “ub diSP (USER BIT DISPLAY)” (page 5-60) in Section 5-3-2 “Setup Menu” for more details.
- 2** Press the DISPLAY key and set the display to “EXT U-BIT”.
The user bit of the external time code appears.

5-2-8. Displaying the Internal Generator Time Code — GEN TIME CODE

Displays the time code generated by the internal time code generator.

Displaying the internal generator time code



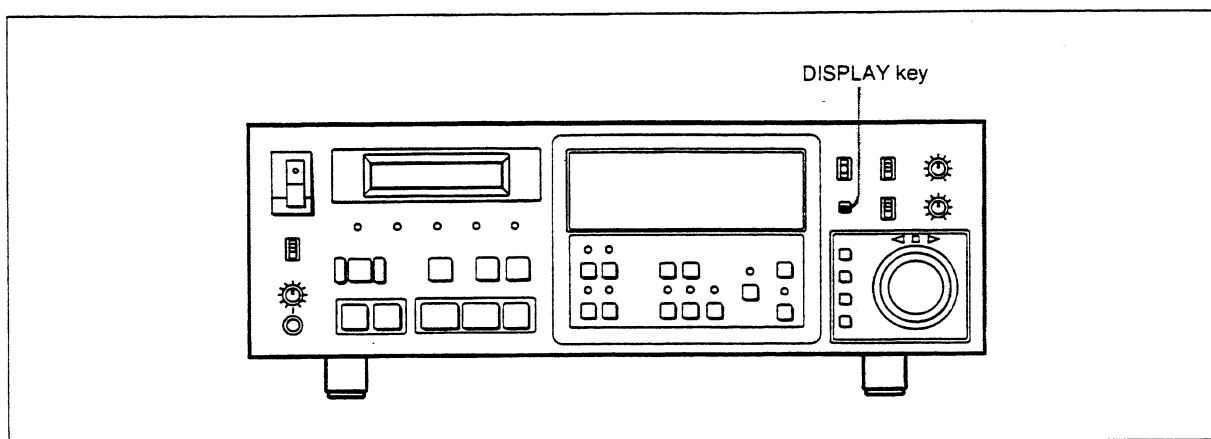
Displaying the internal generator time code

Press the DISPLAY key and set the display to “GEN TIME CODE”.
The internal generator time code appears.

5-2-9. Displaying the User Bit of the Internal Generator Time Code — GEN U-BIT

Displays the user bit of the time code generated by the internal time code generator.

Displaying the user bit of the internal generator time code



Displaying the user bit of the internal generator time code

- 1 Set “ub-diSP”(USER BIT DISPLAY) to ON from the setup menu of the dial menu.

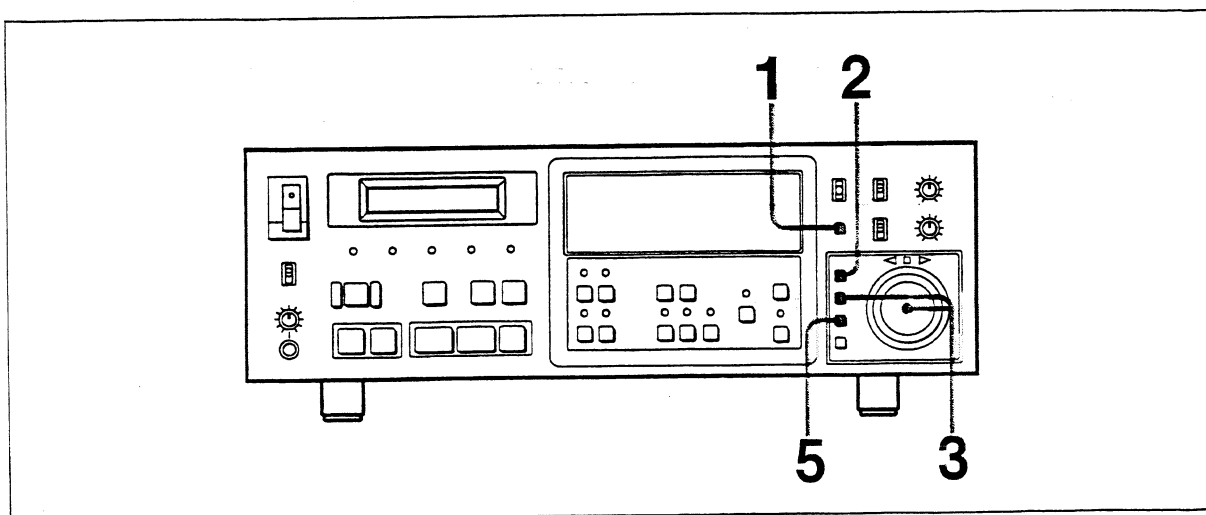
See the section on “ub diSP (USER BIT DISPLAY)” (page 5-60) in Section 5-3-2 “Setup Menu” for more details.

- 2 Press the DISPLAY key and set the display to “GEN U-BIT”. The user bit of the internal generator time code appears.

5-2-10. Setting the Start Time Value of the Time Code Generator — GEN SET TIME

Sets the initial time value of the internal time code generator. Make this setting in the STOP mode, or while ejecting the cassette, or when a cassette is not inserted. The set data will change if the unit enters a mode other than the STOP mode.

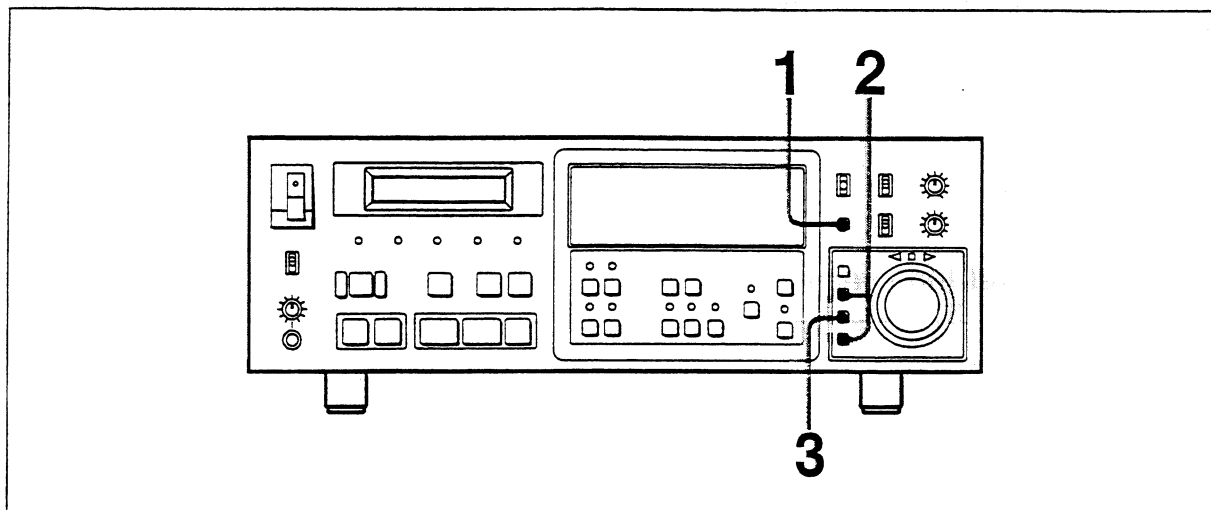
Setting the start time value



Setting the start time value

- 1** Press the DISPLAY key and set the display to "GEN SET TIME". This operation puts the unit in the start time set mode.
- 2** Press the MENU key.
The displayed digit flashes and every time you press the key, the flashing digit moves to the right (H → M → S → F → H...).
- 3** Turn the shuttle dial while holding the DATA key down to set the data for the flashing digit.
To increase the number: Turn the shuttle dial clockwise.
To decrease the number: Turn the shuttle dial counterclockwise.
- 4** Repeat steps **2** and **3** until you complete the setting for all digits.
- 5** Press the SET key.
The flashing stops and the setting finishes.

Setting the start time code value back to “0” — How to reset



Resetting the start time code value

- 1** Press the DISPLAY key and set the display to “GEN SET TIME” display.
This operation puts the unit into the start time set mode.
- 2** Press the RESET key while holding the DATA key down.
All digits are reset to “0”.
- 3** Press the SET key.
Flashing stops and the start time code value sets to “0”.

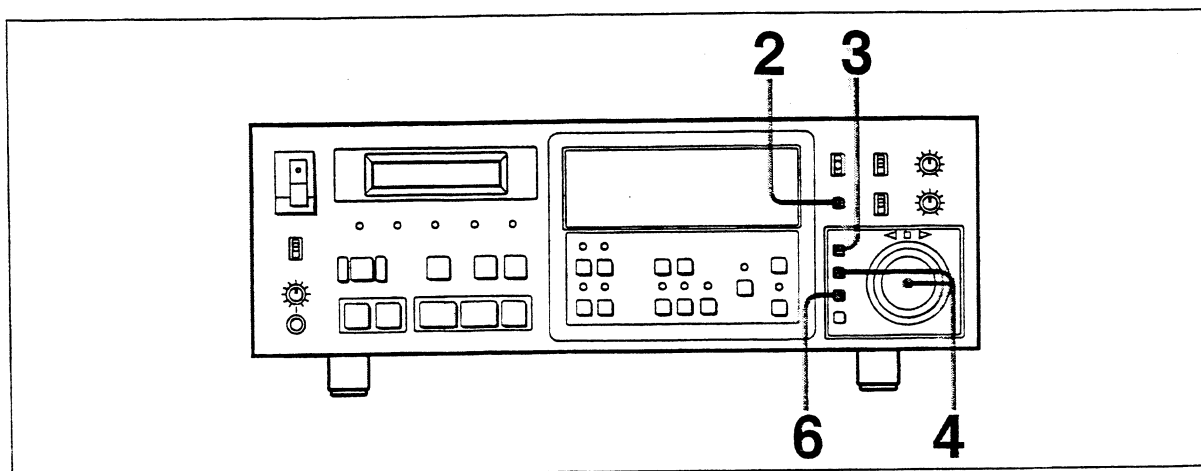
Recording the time code starting from the set initial value

While holding down the REC key, press the PLAY key.
When the optional DABK-7010 is installed in the unit, set the recording time code selector on the connector panel (DABK-7010) to INT, then while holding down the REC key, press the PLAY key.

5-2-11. Setting the User Bit — GEN SET U-BIT

Sets the user bit of the internal time code generator. Make this setting in the STOP mode, or while ejecting the cassette, or when a cassette is not inserted. The set data will change if the unit enters a mode other than the STOP mode.

Setting the user bit



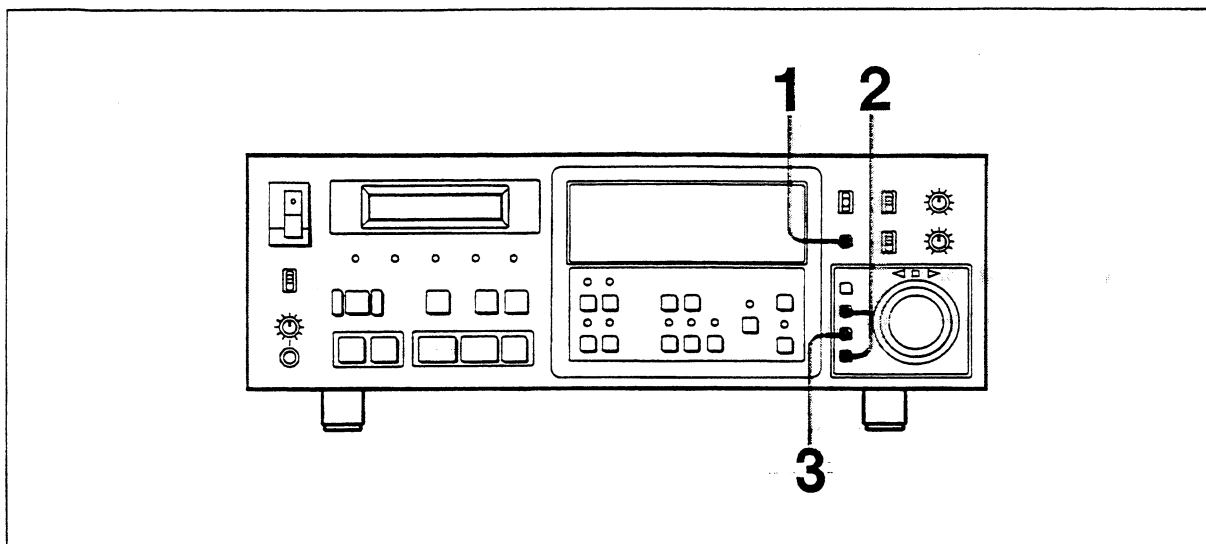
Setting the user bit

- 1 Set "ub-diSP"(USER BIT DISPLAY) to ON from the setup menu of the dial menu.

See the section on "ub diSP (USER BIT DISPLAY)" (page 5-60) in Section 5-3-2 "Setup Menu" for more details.

- 2 Press the DISPLAY key and set the display to "GEN SET U-BIT" display.
This operation puts the unit into the user bit set mode.
- 3 Press the MENU key.
The displayed digit flashes and every time you press the key, the flashing digit moves to the right (H → M → S → F → H...).
- 4 Turn the shuttle dial while holding the DATA key down to set the data for the flashing digit.
To increase the number: Turn the shuttle dial clockwise.
To decrease the number: Turn the shuttle dial counterclockwise.
- 5 Repeat steps 3 and 4 until you complete the setting for all digits.
- 6 Press the SET key.
The flashing stops and the setting finishes.

Setting the user bit back to "0" — How to reset



Resetting the user bit

- 1** Press the DISPLAY key and set the display to "GEN SET U-BIT".
This operation puts the unit into the user bit set mode.
- 2** Press the RESET key while holding the DATA key down.
All digits are set to "0".
- 3** Press the SET key.
Flashing stops and the user bit is set to "0".

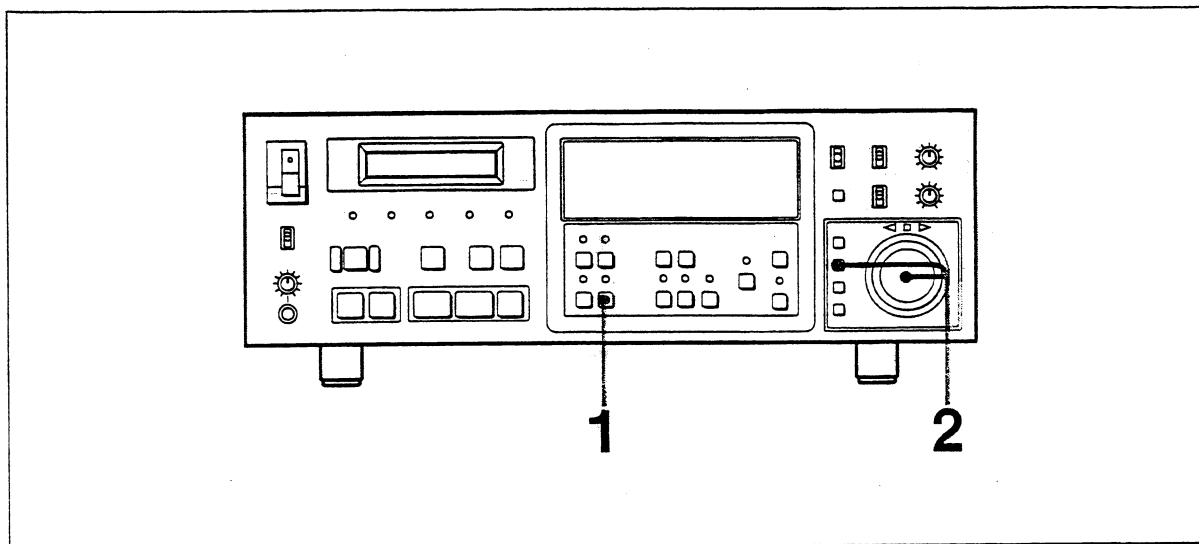
Recording the set user bit

While holding down the REC key, press the PLAY key.
When the optional DABK-7010 is installed in the unit, set the recording time code selector on the connector panel (DABK-7010) to INT, then, while holding down the REC key, press the PLAY key.

5-2-12. Setting the Variable Speed Value and Display of the Set Value — VARI SPEED

Sets the tape speed into variable-speed playback mode and displays the set data.

Setting the tape speed



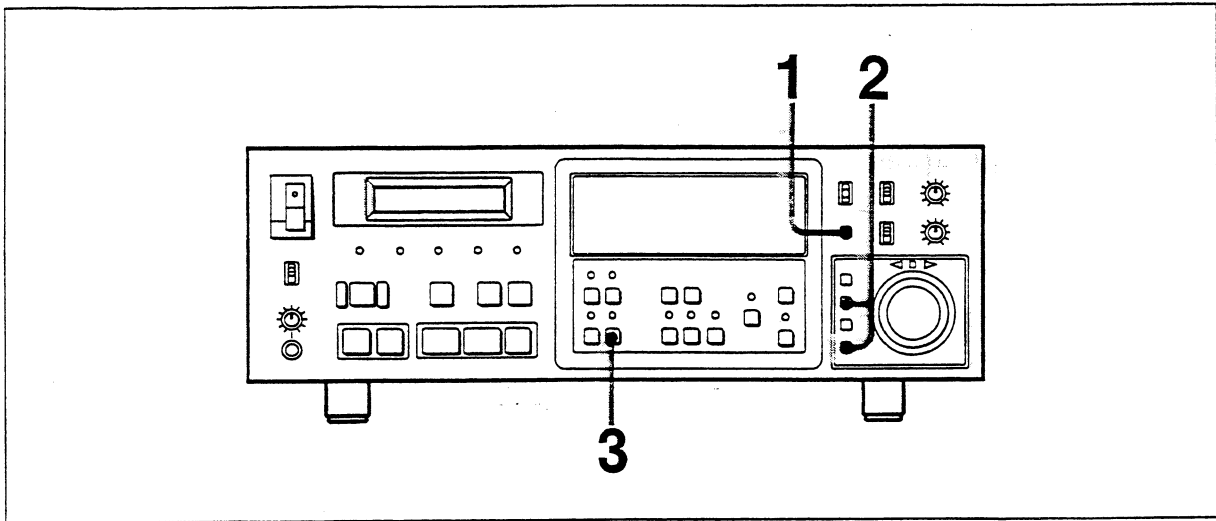
Setting the tape speed

- 1** Press the VARI SPEED key.
The indicator lamp lights.
The mode of the display is set to "VARI SPEED" and the unit enters the variable-speed playback mode.
- 2** Turn the shuttle dial while holding the DATA key down and set the tape speed value.
To increase the value: Turn the shuttle dial clockwise.
To decrease the value: Turn the shuttle dial counterclockwise.
You don't need to press the SET key.

Note

In step 1 above, you may press the DISPLAY key instead of the VARI SPEED key to set the mode of the display to "VARI SPEED". However, this operation does not put the unit into the variable-speed playback mode.

Setting the playback speed to the normal speed — Resetting the speed and releasing the variable speed mode



Resetting the variable speed value

- 1** Press the DISPLAY key and set the display mode to “VARI SPEED”.
- 2** Press the RESET key while holding the DATA key down.
The data displayed is reset to 0%.
- 3** To release the unit from the variable-speed playback mode, press the VARI SPEED key.
The indicator lamp goes out.

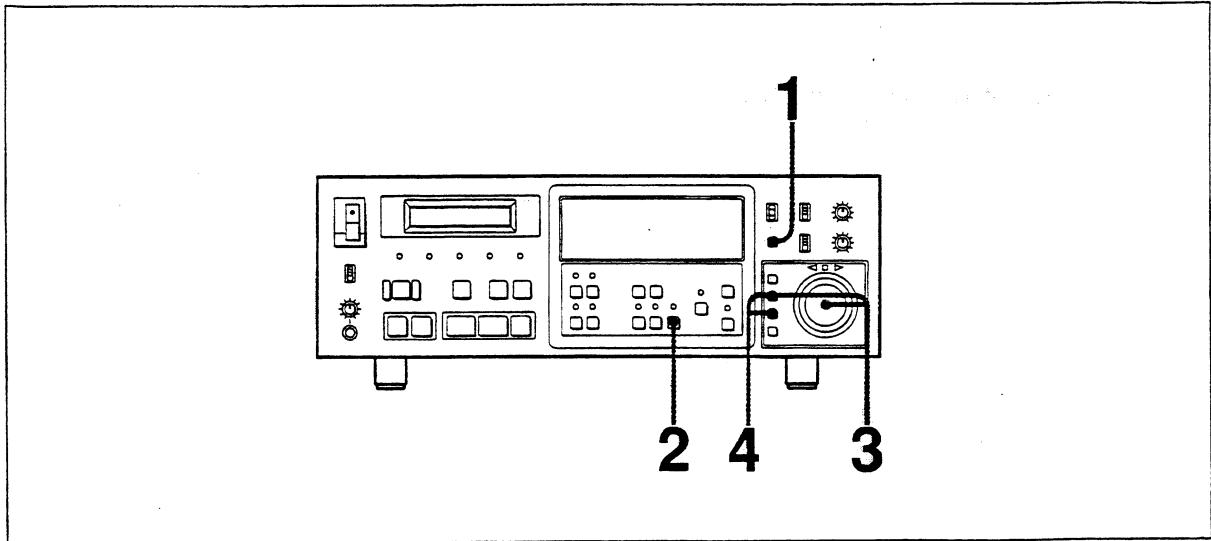
To set the playback speed to -0.1% in the external video synchronization mode

Pressing the SET key while holding the DATA key down sets the playback speed to -0.1% when the following conditions are met:

- The unit is in the variable-speed playback mode.
- The playback speed is set to the normal speed (0%).
- The setting of the time code format is SMPTE, 29.97 Hz.
- The setting of the SYNC signal selector is in VIDEO position (external video synchronization mode).
- The unit is receiving the external video sync signal.
At this time, the unit displays below.
- **When the Fs is 48 kHz:** the unit displays 47 952 (and the sampling frequency is set to 47.952 kHz.)
- **When the Fs is 44.1 kHz:** the unit displays 44 056 (and the sampling frequency is set to 44.056 kHz.)
- **When the Fs is 32 kHz:** the unit displays 31 968 (and the sampling frequency is set to 31.968 kHz.)

5-2-13. Renumbering the Program Number—RENUMBER

Writes the Program Number from the first Start ID of the recorded tape. When the Program Number has already written on the tape, rennumbers the Program Number from the top of the tape. This function calls the renumber operation.



Renumbering the Program Number

- 1** Press the DISPLAY key and set the display to “rEno —”.
- 2** Set the record mode select key to INSERT SUB.
- 3** Turn the shuttle dial while pressing the DATA key to set the Program Number of the top of the tape.
To increase the Program Number: Turn the shuttle dial clockwise.
To decrease the Program Number: Turn the shuttle dial counterclockwise.
- 4** Press the SET key while holding the DATA key down.
The unit rewinds the tape and writes the Program Number from the top Start ID of the tape according to the above number setting.

For details about erasing the Start ID, see the section on “Writing/erasing Start ID” (page 4-11) in Section 4-1-6 “Basic Recording Procedure”.

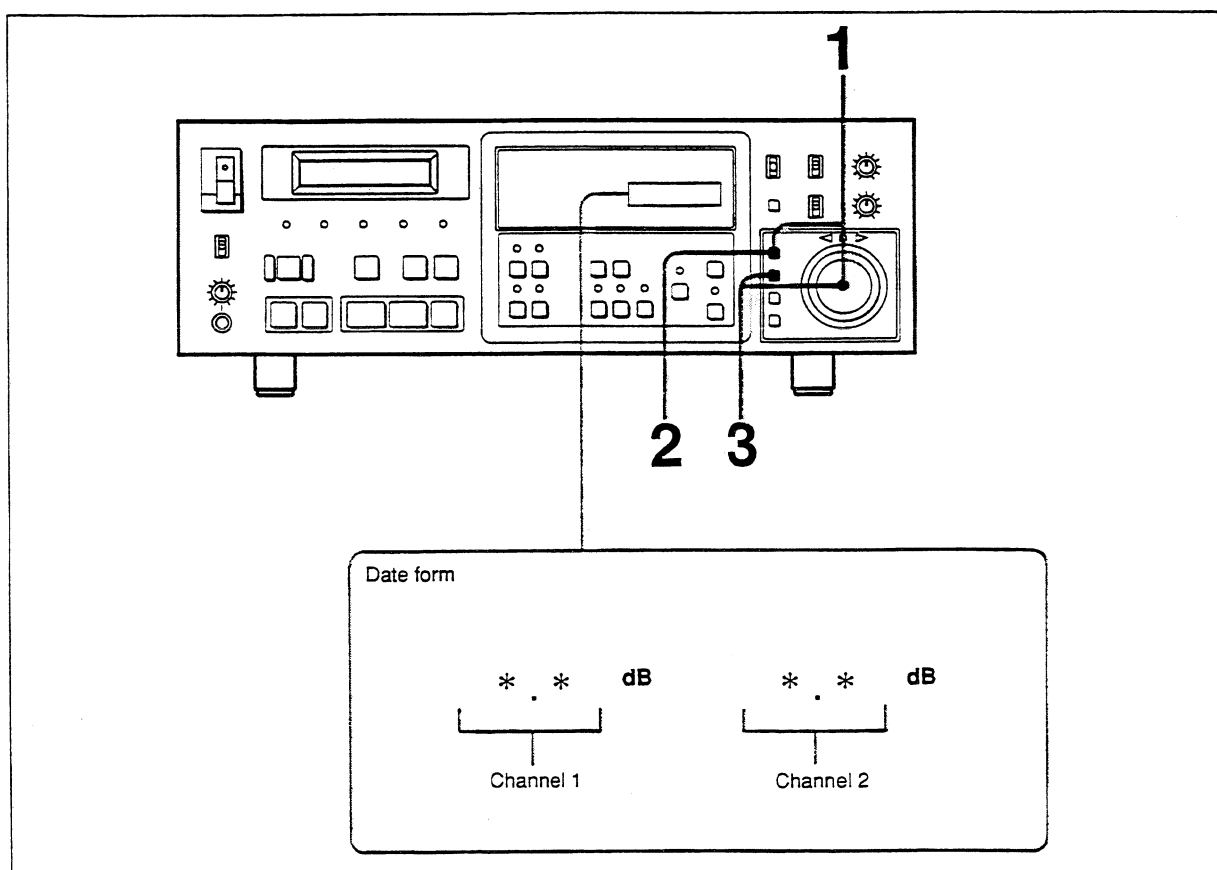
5-3. Dial Menu Operations

The dial menu consists of two menus: display menu (displaying the information) and setup menu (setting the setup).
The function and the operation of each menu is explained below.

5-3-1. Display Menu

Setting and displaying the input signal gain — “inP GAIN” (INPUT GAIN)

Set and displays the gain of analog audio input signal and digital audio input signal.



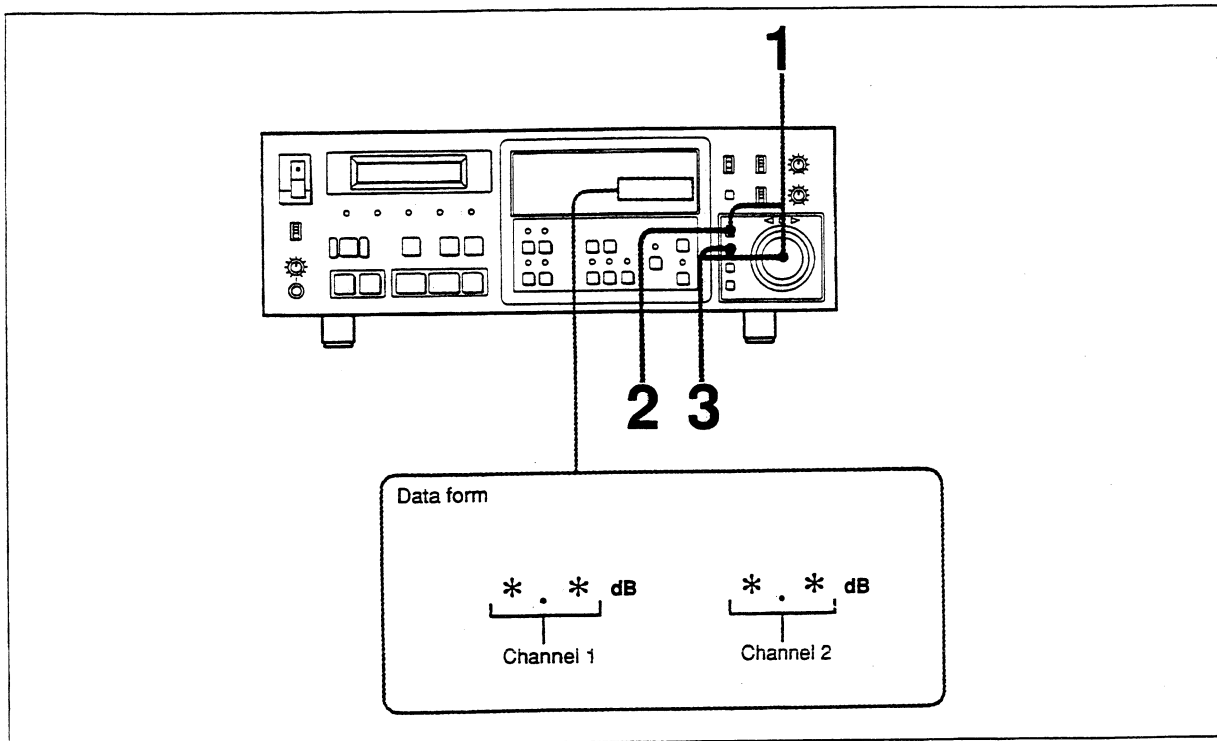
- 1** Turn the shuttle dial while holding the MENU key down and set the display to "inP GAin".
- 2** Press the MENU key.
The displayed input signal gain value for the channel which you can change flashes and every time you press the key, the flashing channel moves to the right (channel 1 and channel 2 → channel 1 only → channel 2 only → no flashing...).
- 3** Turn the shuttle dial while holding the DATA key down and set the gain of the desired channel(s).
The setting range is $\pm 6\text{dB}$ with 0.1dB steps.
To increase the number: Turn the shuttle dial clockwise.
To decrease the number: Turn the shuttle dial counterclockwise.
- 4** Repeat steps **2** and **3** until you complete the gain setting for the desired channel(s).
You don't need to press the SET key.

Setting the input gain back to "0" — How to reset

- 1** Turn the shuttle dial while holding the MENU key down and set the display to "inP GAin".
- 2** Press the MENU key.
The displayed value for the channel which you can change flashes and every time you press the key, the flashing channel moves to the right (channel 1 and channel 2 → channel 1 only → channel 2 only → no flashing...).
- 3** Press the RESET key while holding the DATA key down.
Flashing channel(s) are set to "0".
- 4** Repeat steps **2** and **3** until you finish resetting the desired channel(s).

Setting and displaying the output signal level—"outP GAIN" (OUTPUT GAIN)

Set and displays the level of analog audio output signal and digital audio output signal.



Setting and displaying the output signal level

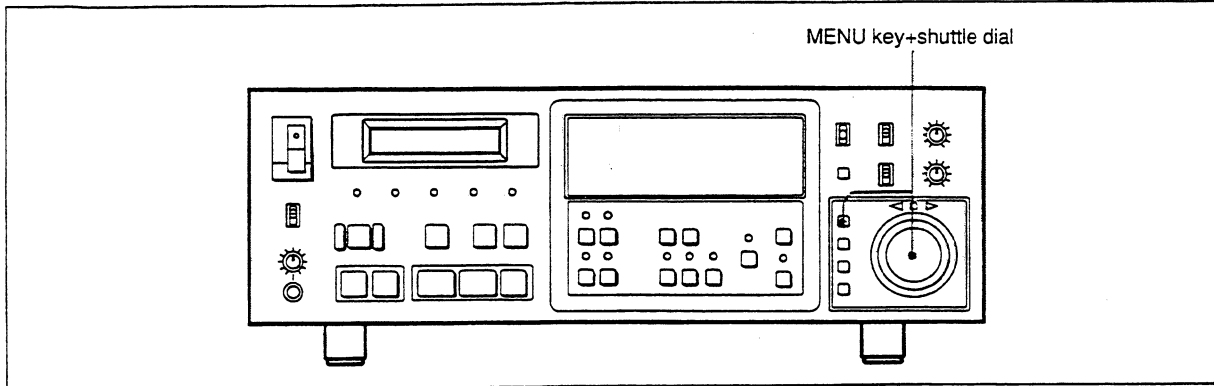
- 1** Turn the shuttle dial while holding the MENU key down and set the display to "outP GAIN".
- 2** Press the MENU key.
The displayed output signal level value for the channel which you can change flashes and every time you press the key, the flashing channel moves to the right (channel 1 and channel 2 → channel 1 only → channel 2 only → no flashing...).
- 3** Turn the shuttle dial while holding the DATA key down and set the level of the desired channel(s).
The level setting range is ± 6 dB with 0.1 dB steps.
To increase the number: Turn the shuttle dial clockwise.
To decrease the number: Turn the shuttle dial counterclockwise.
- 4** Repeat steps **2** and **3** until you complete the level setting for the desired channel(s).
You don't need to press the SET key.

Setting the output level back to "0"—How to reset

- 1** Turn the shuttle dial while holding the MENU key down and set the display to "outP GAIN".
- 2** Press the MENU key.
The displayed value for the channel which you can change flashes and every time you press the key, the flashing channel moves to the right (channel 1 and channel 2 → channel 1 only → channel 2 only → no flashing...).
- 3** Press the RESET key while holding the DATA key down.
Flashing channel(s) are set to "0".
- 4** Repeat steps **2** and **3** until you finish resetting the desired channel(s).

Displaying the error code — “Error”(ERROR)

Displays the error code which outlines the errors detected so that you can tell how and what parts of the unit are affected.

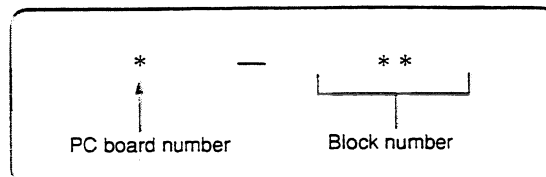


Displaying the error code

Turn the shuttle dial while holding the MENU key down and set the display to “Error”.

The unit displays the error code.

The meaning of the error code is as follows:



Error code form

List of the printed circuit (PC) board numbers where an error has occurred

Displays the parts where an error occurred by the number.

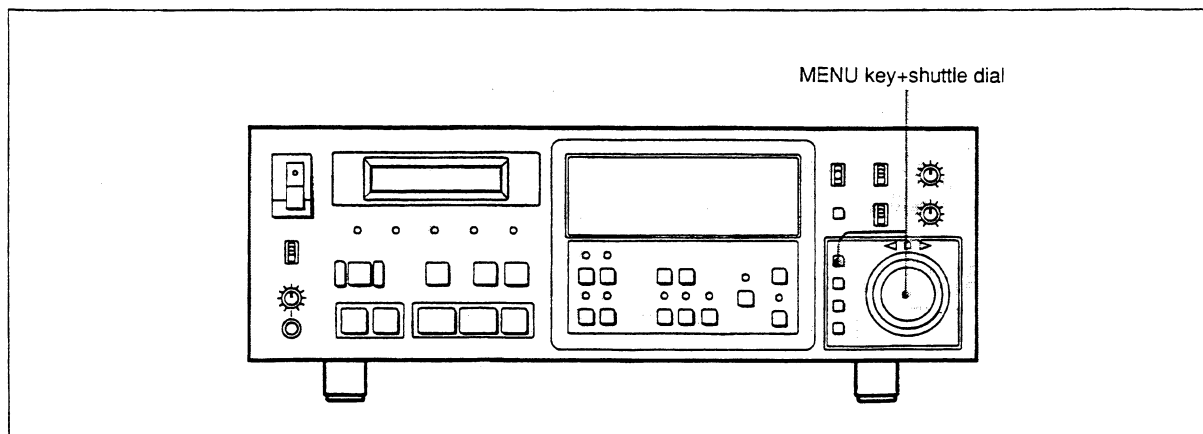
- 1: System control board (SP-1 board)
- 2: Servo board (SRVO board)
- 3: Signal processing board (SP-2 board)
- 4: Digital I/O board (DIO-A/B board, optional DABK-7011A/7011B)
- 5: Time code reader/generator board (TC-1, TC-2 board, optional DABK-7010 board)
- 6: Memory start board (MEM board, optional DABK-7012 board)

About the block number

See Section 7-2-2 “Error Codes” (page 7-6) for details.

Displaying the warning code — “cAution”(CAUTION)

Displays a warning code which outlines the error detected so that you can tell how and what parts of the unit are affected.



Displaying the warning code

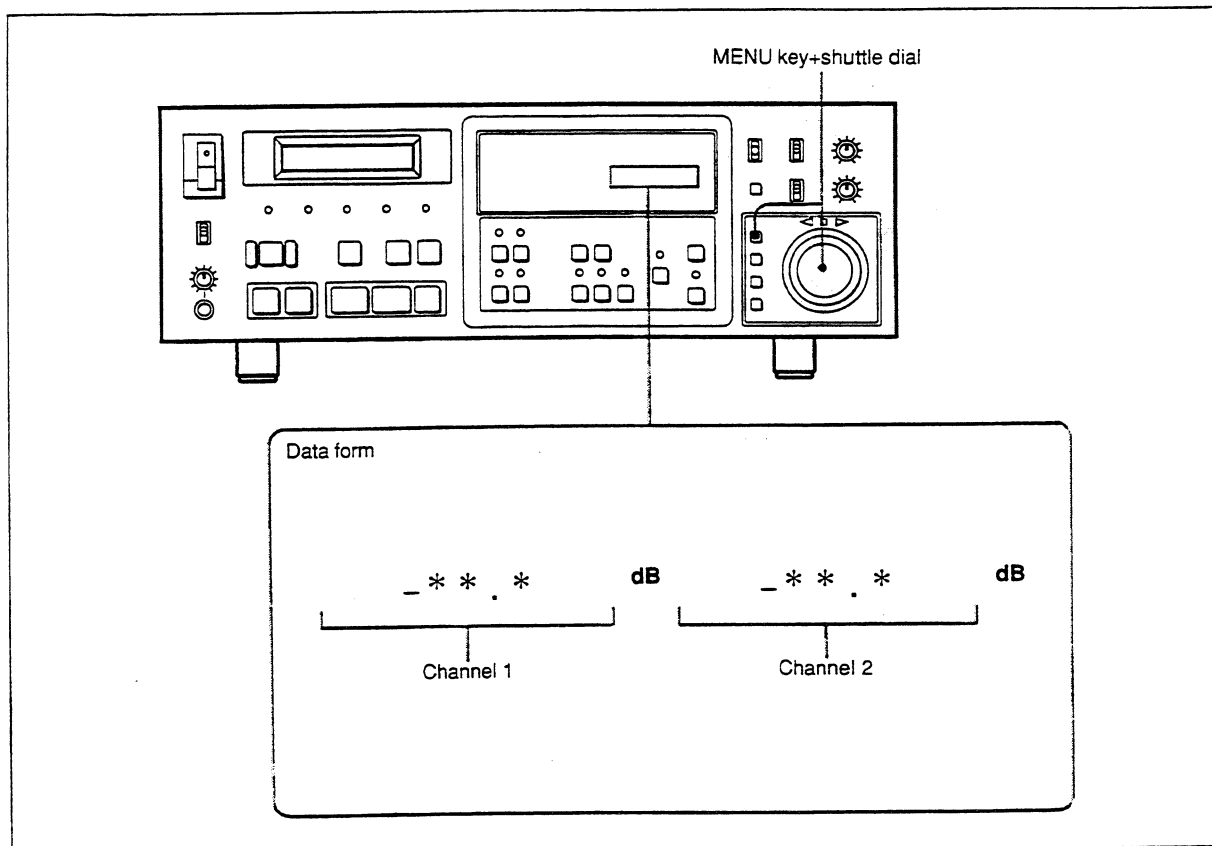
Turn the shuttle dial while holding the MENU key down and set the display to “cAution”.

The unit displays the warning code.

The meaning of the warning code is the same as the error code (page 5-34).

Displaying the level meter indications numerically — “Au rEF”(AUDIO REFERENCE)

Displays the level meter indications numerically.



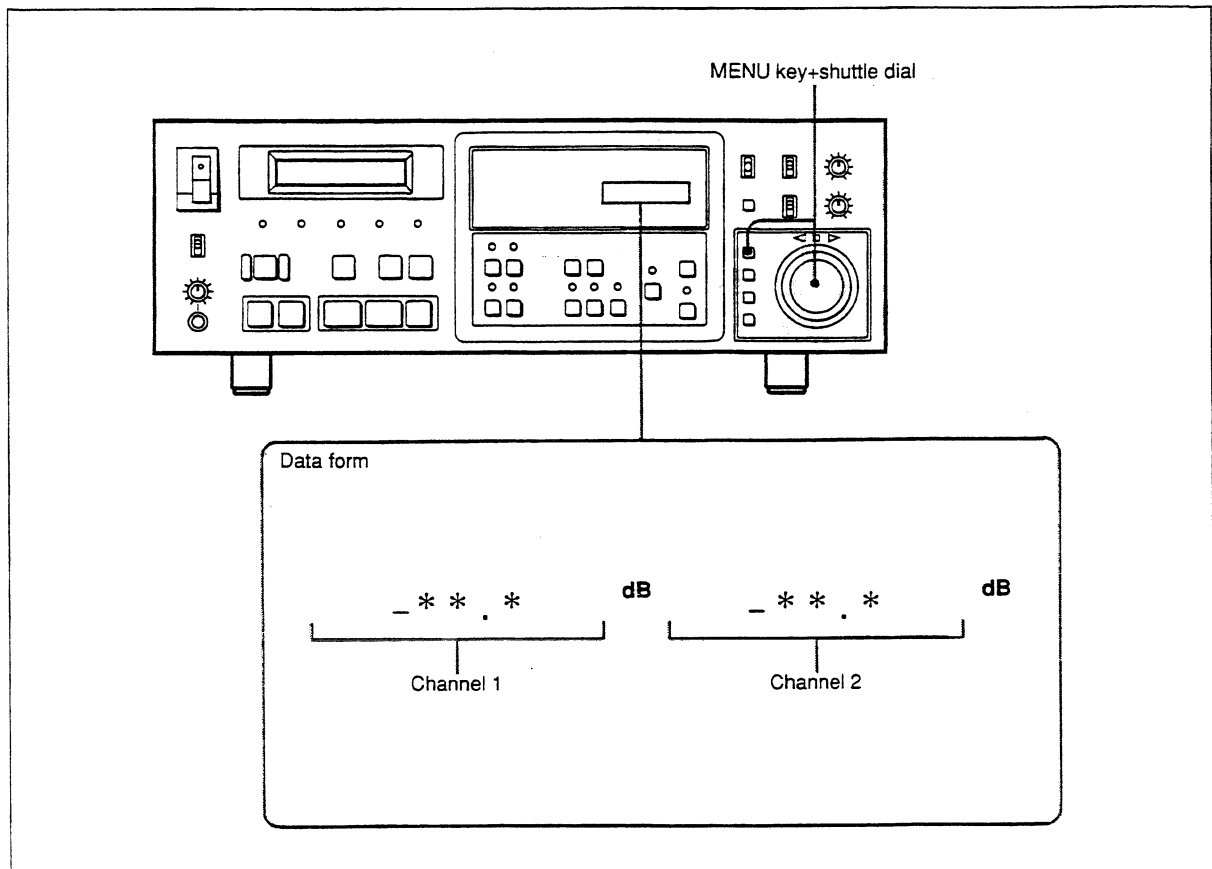
Displaying the level meter indications numerically

Turn the shuttle dial while holding the MENU key down and set the display to “Au rEF”.

The unit displays numerically the signal level on the level meters. If the level is under -25.5dB, the display shows “----”.

Displaying the peak hold level of the level meter numerically — “Au rEF-P” (AUDIO REFERENCE PEAK HOLD)

Displays the peak hold level of the level meters numerically.



Numerically displaying the peak hold level of the level meters

Turn the shuttle dial while holding the MENU key down and set the display to “Au rEF-P”.

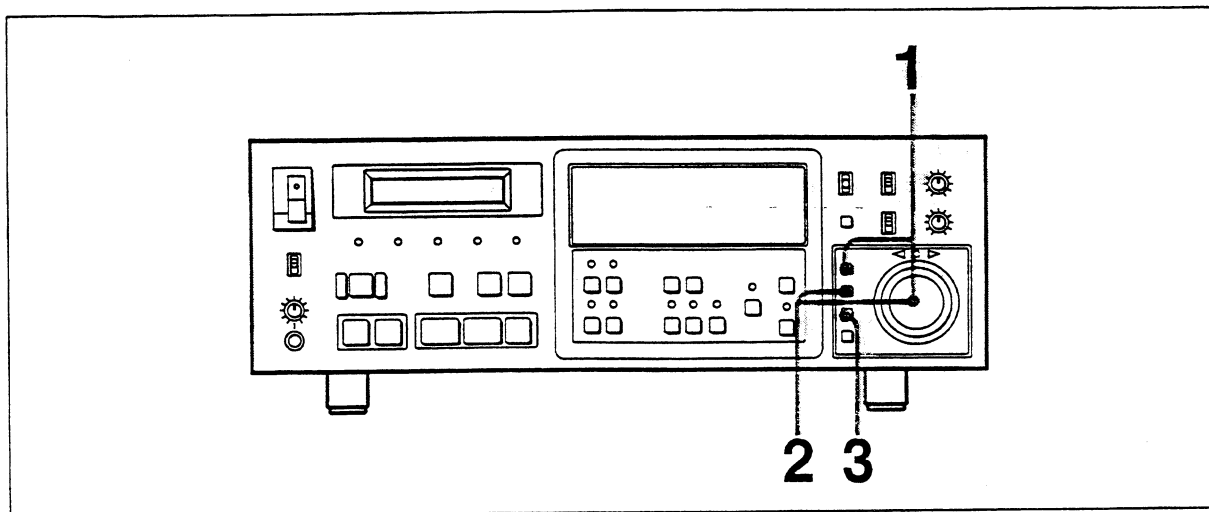
The unit displays the peak hold level of the level meters numerically. If the level is under -25.5dB , the display shows “----”.

Selecting the menu level of the display menu — “[dSP Grd]”(DISPLAY MENU GRADE)

Selects the menu level of the display menu from basic display and expanded display.

The setting is retained when you turn the power off.

Factory-set position: “bASic”(BASIC)



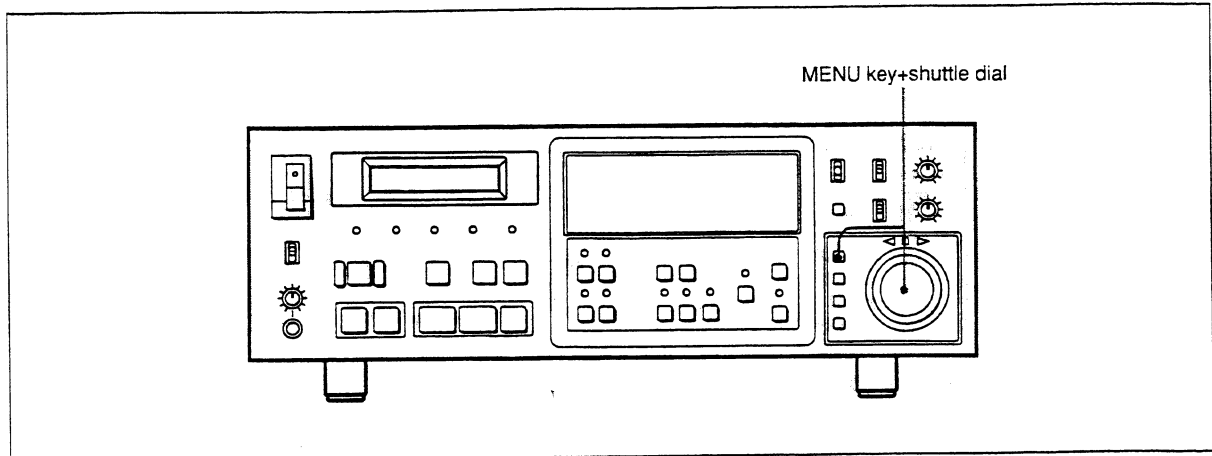
Selecting the menu level of the display menu

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “[dSP Grd]”.
- 2** Turn the shuttle dial while holding the DATA key down to select the menu level.
The displayed menu level flashes (according to the two choices below) and every time you turn the shuttle dial, the flashing menu level changes. The changes are as follows:
 - “bASic”(BASIC): The unit enters the basic display menu mode.
 - “EnHAnCED”(ENHANCED): The unit enters the expanded display menu mode.
- 3** Press the SET key.
The flashing stops and the selection is entered.

Displaying the last error point — “LAsT Err”(LAST ERROR)

Displays the time code of the last point where an error occurred and the erroneous data was interpolated or the audio signals were muted.

This function is available when: the level of the display menu is “EnHAnCED”(ENHANCED).



Displaying the last error point

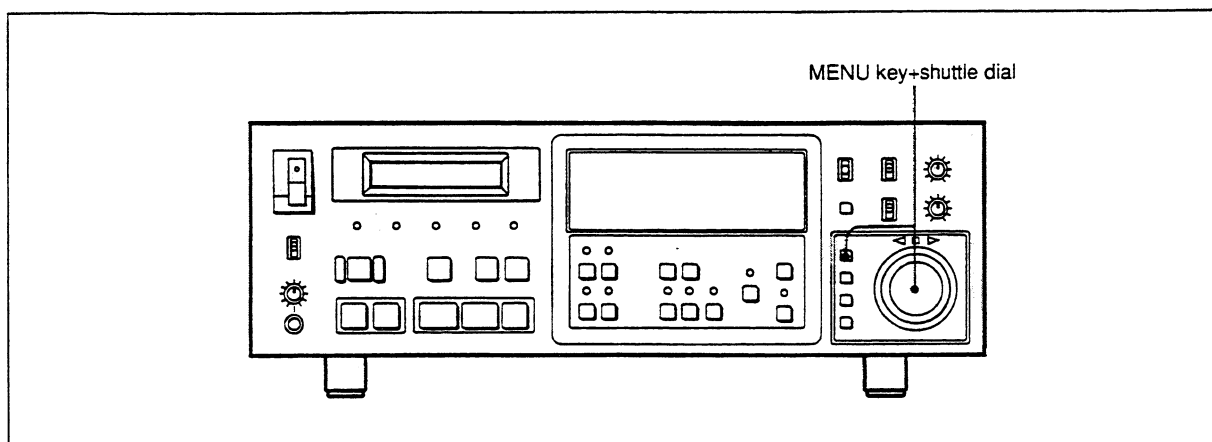
Turn the shuttle dial while holding the MENU key down and set the display to “LAsT Err”.

The unit displays the time code of the last interpolating or muting point.

Displaying the time code format of the tape — “tAPE tcF”(TAPE TIME CODE FORMAT)

Displays the time code format of the tape. Using this function, you can find the time code format on the recorded tape.

This function is available when: the level of the display menu is “EnHAnCED”(ENHANCED).



Displaying the time code format of the tape

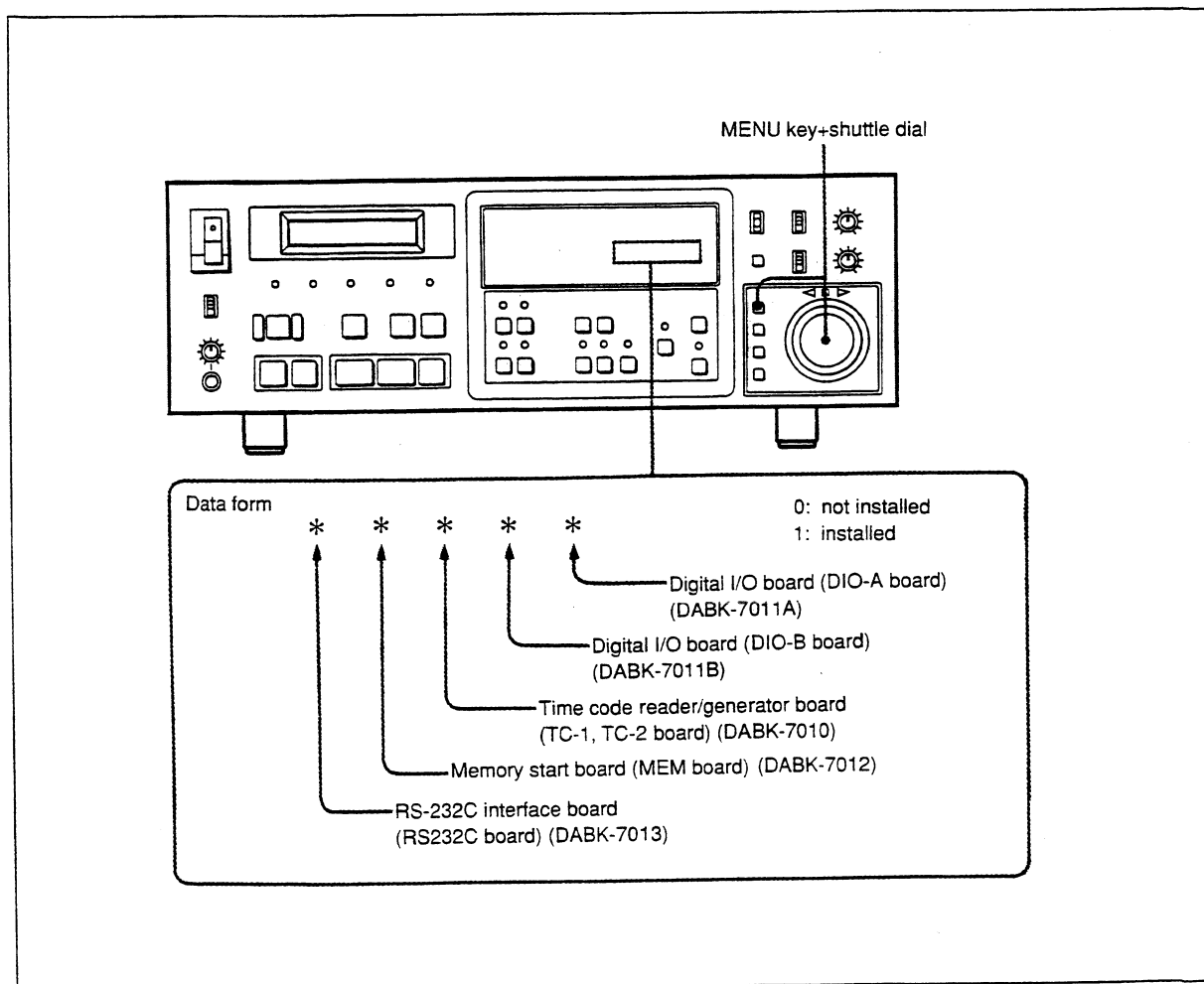
Turn the shuttle dial while holding the MENU key down and set the display to “tAPE tcF”.

The unit displays the time code format on the recorded tape.

Displaying the presence of an optional board — “oPtion”(OPTION)

Indicates which optional boards are installed in the unit.

This function is available when: the level of the display menu is “EnHAnCED”(ENHANCED).



Displaying the presence of an optional board

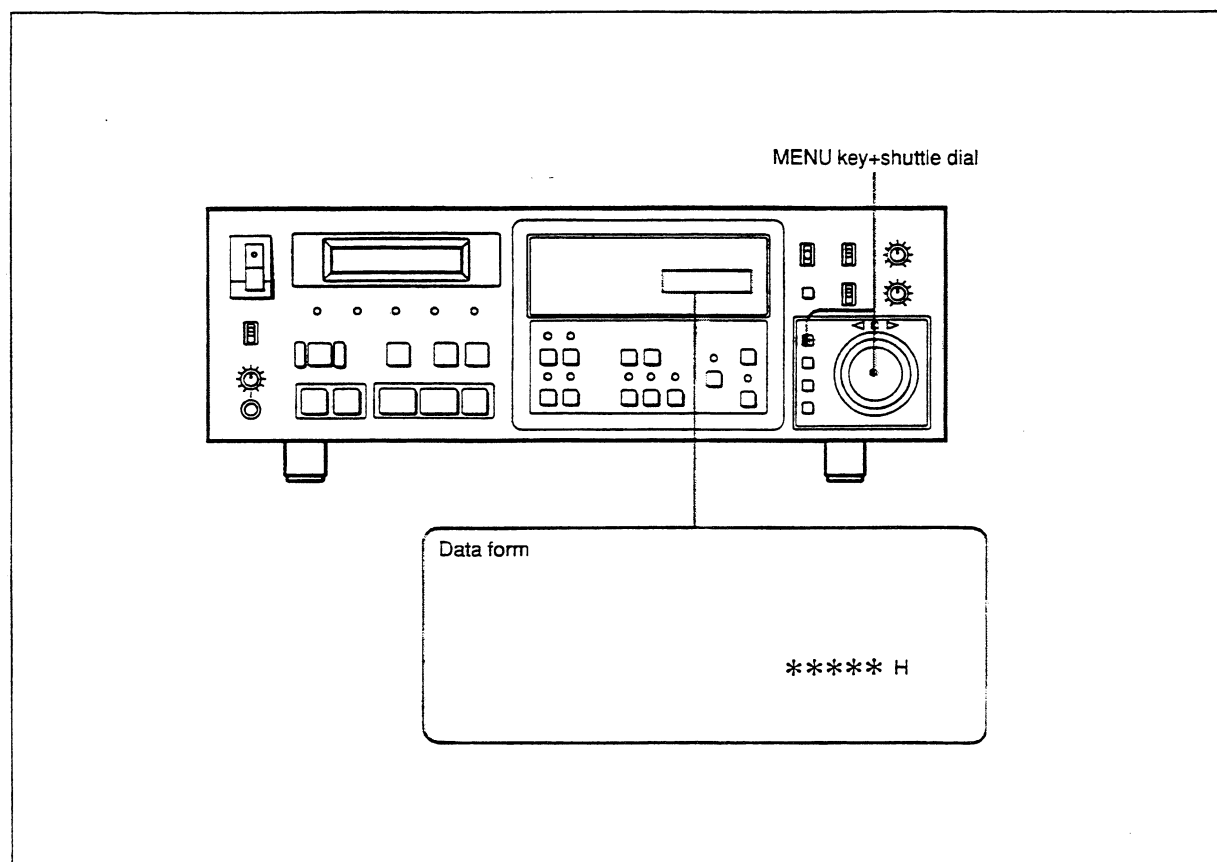
Turn the shuttle dial while holding the MENU key down and set the display to “oPtion”.

The unit displays the presence of the installed board by the numbers “0” and “1”.

Displaying the rotation time of the head drum — “Hour-t”(HOUR TIME)

Displays the accumulated rotation time of the head drum. Using this indication, decide when to change the head drum. To change the head drum, consult a qualified Sony service technician.

This function is available when: the level of the display menu is “EnHAnCED”(ENHANCED).



Displaying the rotation time of the head drum

Turn the shuttle dial while holding the MENU key down and set the display to “Hour-t”.

The unit displays the rotation time of the head drum.

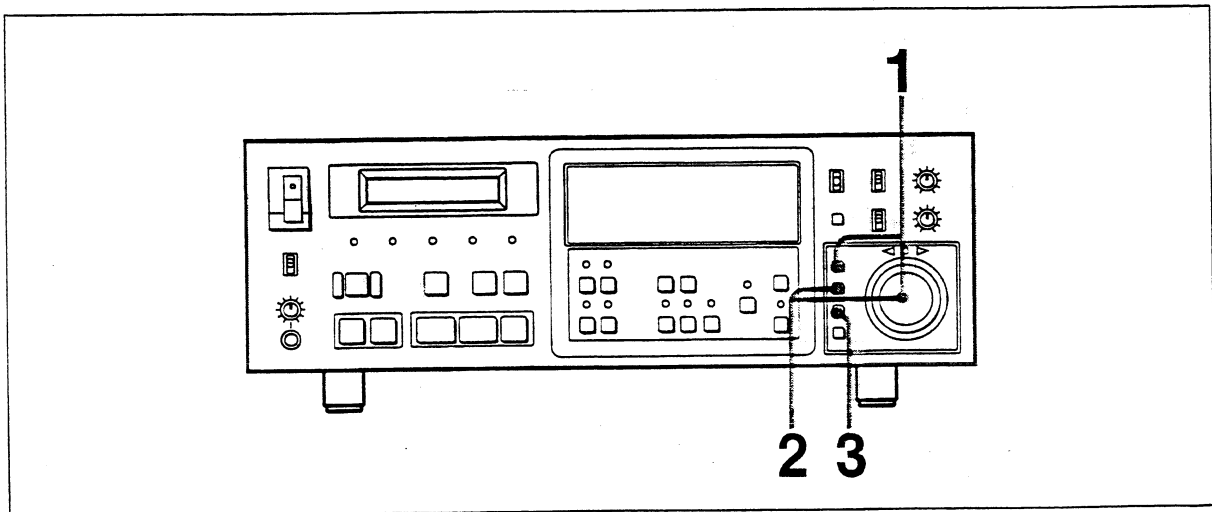
5-3-2. Setup Menu

Storing customized data for the setup menu — “-- Sto--” (STORE)

Stores customised data you have chosen for each setup menu. The data is stored from address 1 to address 10.

Once storing the data, then you can select one of the 10 addresses to store your parameters and operate the unit using your own setup data. When storing the setup data, you have to set each parameter of the setup menu in advance.

The setup data in the address saved is retained when you turn the power off.

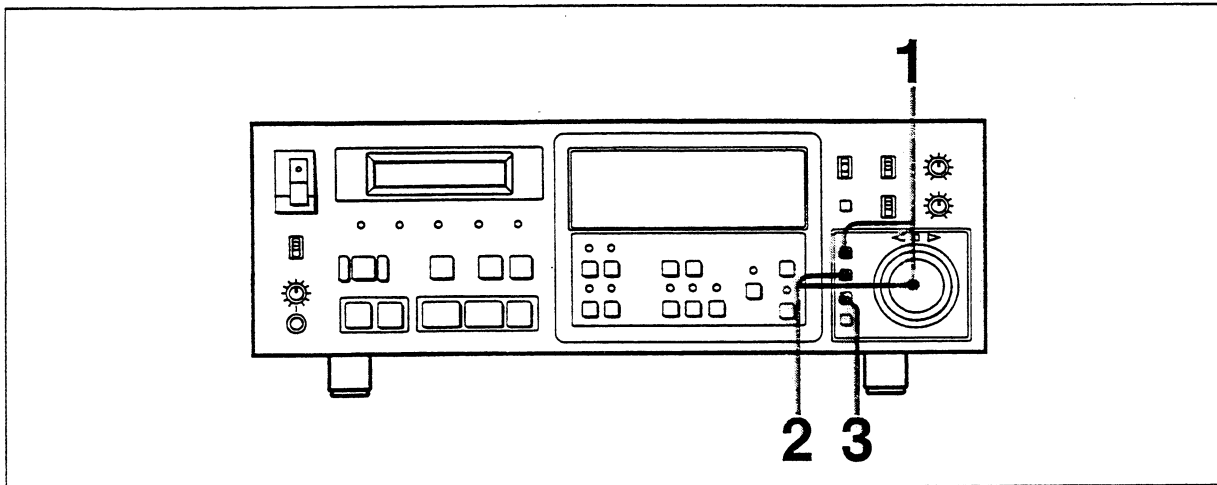


Storing the setup data for the setup menu

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “-- Sto--”.
The unit enters the setup data storing mode.
- 2** Turn the shuttle dial while holding the DATA key down to select storing address.
By turning the shuttle dial, the flashing address number changes from 1 to 10.
To increase the address number: Turn the shuttle dial clockwise.
To decrease the address number: Turn the shuttle dial counterclockwise.
- 3** Press the SET key.
Flashing stops and the setup data of each setup menu are stored in the selected address.

Recalling the stored data of the "-- Sto--" menu — "-- rcL--" (RECALL)

You can recall the stored data of the "-- Sto--" menu using the address number from 1 to 10. Also, you can recall factory-set data instead of address 1 to 10. You can operate the unit by the recalled data. The recalled address numbers are saved when you turn the power off. When you turn the power on again, the unit holds the current address number.



Recalling the stored data

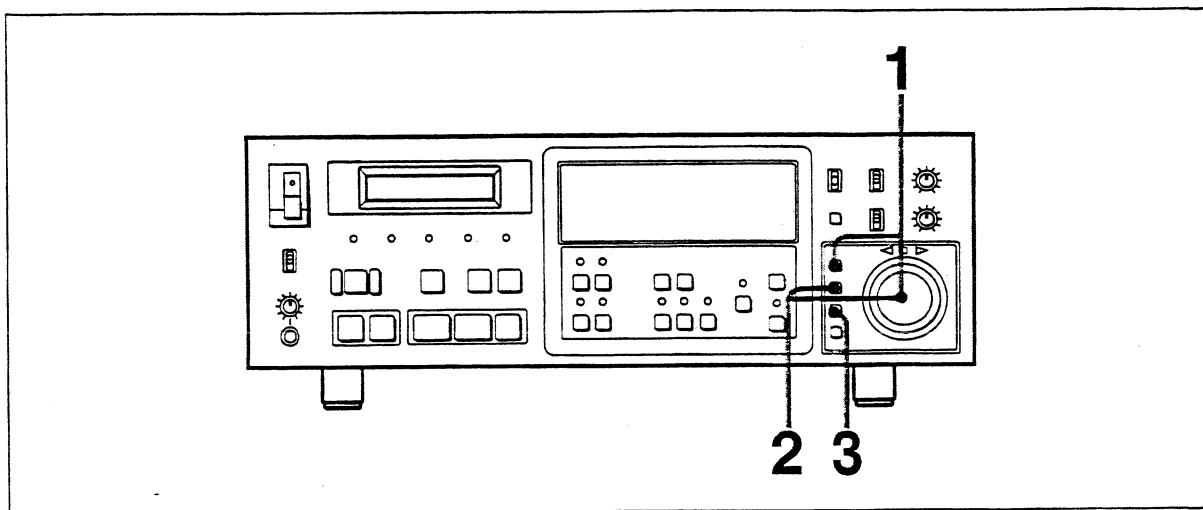
- 1** Turn the shuttle dial while holding the MENU key down and set the display to "-- rcL--".
The unit enters the stored setup data recalling mode.
- 2** Turn the shuttle dial while holding the DATA key down to select recalling address.
By turning the shuttle dial, the flashing address number changes from 1 to 10.
Between address number 10 and address number 1, "FACTOR Y" (FACTORY) appears on the display. "FACTOR Y" allows you to operate the unit by the factory-set data.
To increase the address number: Turn the shuttle dial clockwise.
To decrease the address number: Turn the shuttle dial counterclockwise.
- 3** Press the SET key.
Flashing stops and the stored setting data are recalled.
You can operate the unit by the stored setup data.

Selecting the basis of the time code — “tc bASE”(TIME CODE BASE)

You can select and display the basis of the time code to be lit up in the tape time display area on the display or when searching for.

Sony uses “PRO R-TIME” as the DAT format for professional use. So, normally you will use PRO R-TIME. (“PRO R-TIME” is also referred to as “time code”.) But if you play another format tape, you can change the basis of the time code. The PCM-7010 can also play tape recorded in absolute time (ABS TIME) (which is used on the consumer DAT products). Note, however, that in this case the displayed time code is converted into SMPTE or EBU time code. The setting is saved when you turn the power off.

Factory-set position: “Auto”(AUTO)



Selecting the basis of the time code

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “tc bASE”.
The unit enters the mode for selecting the basis of the time code.
- 2** Turn the shuttle dial while holding the DATE key down to select the basic time code.

By turning the shuttle dial, the flashing basis of the time code changes as shown below.

“Auto”(AUTO): The PCM-7010 automatically selects the recorded time code on the tape as the basis of the time code. In this case, indication on the display lights up as follows.

The tape recorded in PRO R-TIME: lights up the “TIME CODE” indicator on the display.

The tape recorded only in absolute time: lights up the “TIME CODE” and “ABS TIME” indicators on the display.

The tape recorded in neither PRO R-TIME nor absolute time: lights up the “COUNTER” indicator on the display.

“tc”(TIME CODE): The PCM-7010 operates based on the PRO R-TIME and lights up the “TIME CODE” indicator on the display.

“AbS-tc”(ABSOLUTE TIME): The PCM-7010 operates based on the ABS TIME and lights up both the “TIME CODE” and the “ABS TIME” indicators on the display.

“countEr”(COUNTER): The PCM-7010 operates based on the COUNTER and lights up the “COUNTER” indicator on the display.

“dAtEYEAR”(DATE YEAR): When you play the tape with the time data recorded on the subcode area, the time data (such as year, month, and day) appears on the display. Except when playing the tape, the present time of the internal clock appears on the display. The DATE indicator appears on the display.

“dAtEHour”(DATE HOUR): When you play the tape with the time data recorded on the subcode area, the time data (such as hour, minute, and second) appears on the display. Except when playing the tape, the present time of the internal clock appears on the display. The DATE indicator appears on the display.

3 Press the SET key.

Flashing stops and the setting of the basis of the time code finishes. The basis of the time code is displayed on the display of the unit. The DATE indicator appears on the display while “dAtEYEAR” or “dAtEHour” is selected.

See the section on “dAtEAUTO(DATE AUTO REC)” (page 5-67) in Section 5-3-2 “Setup Menu” for selecting whether or not to automatically write the time data during assemble recording.

See the section on “dAtE AdJ(DATE ADJUST)” (page 5-82) in Section 5-3-2 “Setup Menu” for setting the time of the internal clock.

Note

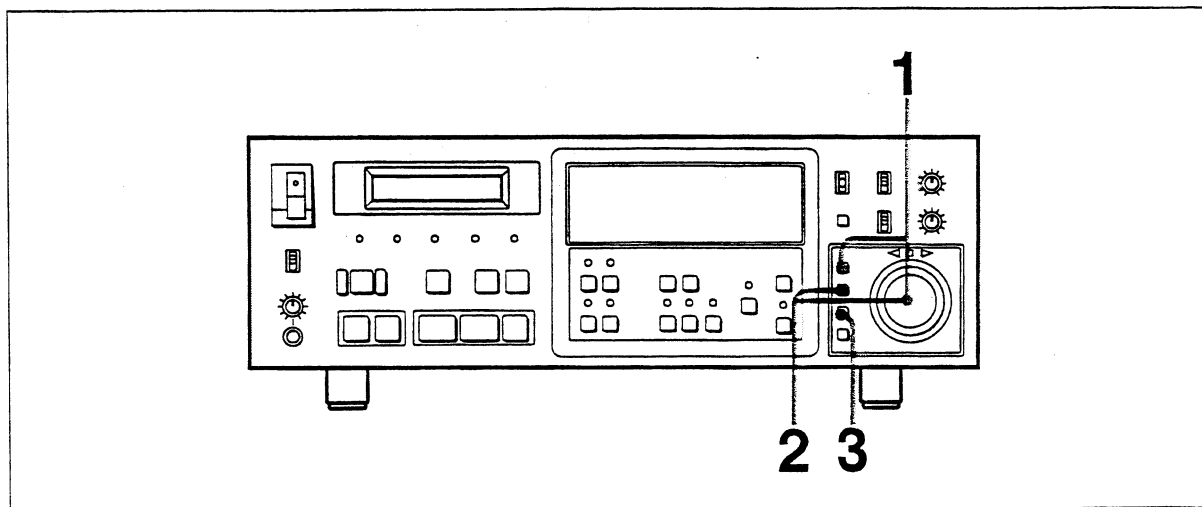
When taking a cassette out in selecting “Auto”, the unit displays the “tc” and operates based on the PRO R-TIME.

Selecting the time code format and the reference video signal frequency — “rEF tcF” (REFERENCE TIME CODE FORMAT)

You can select and display the time code format and the reference video sync signal frequency.

The setting is saved when you turn the power off.

Factory-set position: SMPTE (drop frame mode), 29.97 Hz (for the model for USA and Canada) or EBU, 25 Hz (for the model for European countries)



Selecting the time code format and the reference video frequency

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “rEF tcF”.
The unit enters the mode for selecting the time code format and the reference video signal frequency.
- 2** Turn the shuttle dial while holding the DATA key down to select the time code format and the reference video frequency.
By turning the shuttle dial, flashing time code format and reference video frequency changes 6 patterns as shown below.
 - “**30 ndF**”: SMPTE (non-drop frame mode), 30 Hz → The unit displays the “SMPTE”, “NDF” and “30” (when the unit is in the external video synchronization mode).
 - “**2997 ndF**”: SMPTE (non-drop frame mode), 29.97 Hz → The unit displays the “SMPTE”, “NDF” and “29.97” (when the unit is in the external video synchronization mode).
 - “**2997 dF**”: SMPTE (drop frame mode), 29.97 Hz → The unit displays the “SMPTE”, “DF” and “29.97” (when the unit is in the external video synchronization mode).
 - “**25 Ebu**”: EBU, 25 Hz → The unit displays the “EBU” and “25” (when the unit is in the external video synchronization mode).
 - “**50 FiL**”: film, 50 Hz → The unit displays no indication.
 - “**60 FiL**”: film, 60 Hz → The unit displays no indication.

3 Press the SET key.

The flashing stops and the selection of the time code format and the reference video frequency finishes. The unit displays the selected time code format and the reference video frequency on the display panel.

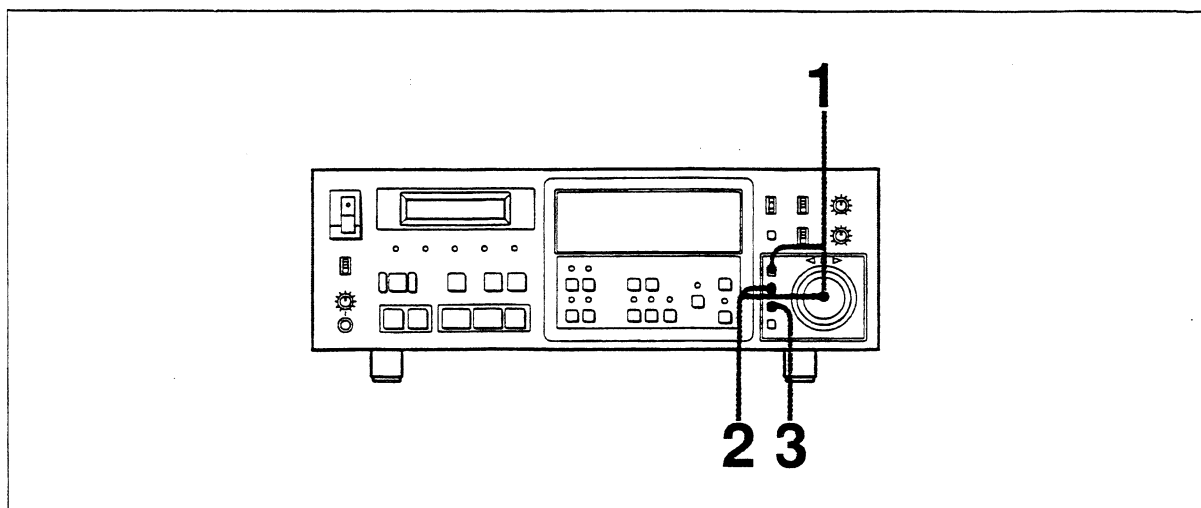
Note

The PCM-7010 can change from one time code format to another. If you change the SMPTE, 29.97 Hz time code format to another, because of the difference between real time and SMPTE time code of this unit, it is possible that this unit will display skipping time code or a time code over 24H00M00s00F when crossing at 12 o'clock midnight (0 o'clock). But, the unit is not out of order. For the same format recording/playing, the time code continues when crossing at 12 o'clock midnight (0 o'clock).

Selecting the recording time code (when a DABK-7010 is installed)—“rEc tc” (RECORD TIME CODE)

Selects one of the following recording time codes: the time code generated in the unit or the one input to the TIME CODE INPUT connector at the rear.

Factory-set position: “int” (INTERNAL)



Selecting the recording time code

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “rEc tc”.
- 2** Turn the shuttle dial while holding the DATA key down to select the recording time code.
By turning the shuttle dial, the indicator flashing changes from “int” to “inPut”.
 “int” (INTERNAL): The unit records the time code generated in the unit.
 “inPut” (INPUT)[external]: The unit records the time code input to the TIME CODE INPUT connector at the rear.
- 3** Press the SET key.
Flashing stops and the selection of the recording time code finishes.

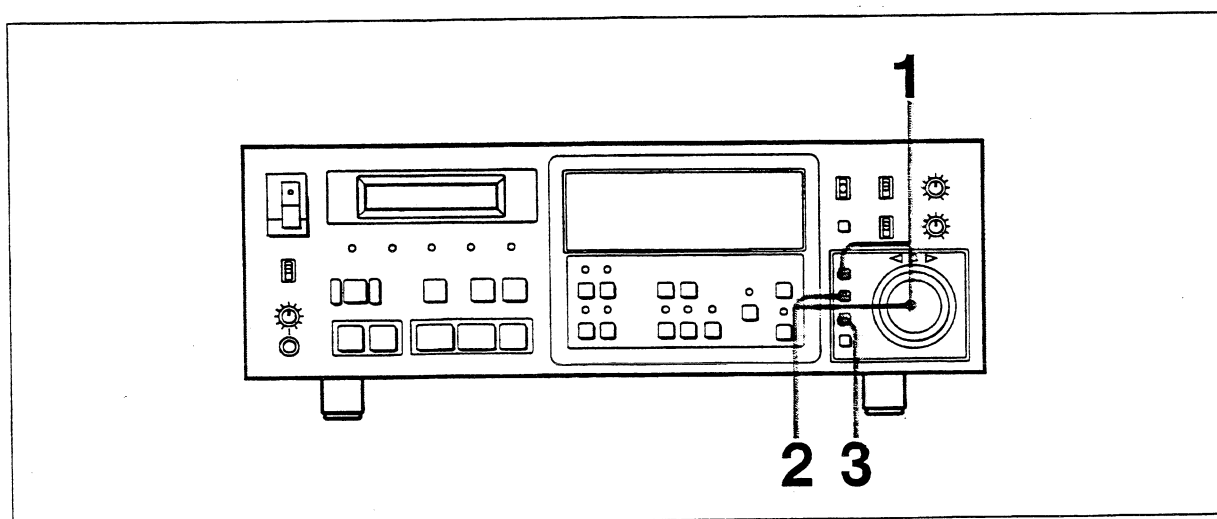
Selecting the audio signal format for digital input/output (when a DABK-7011B is installed) —“dio SEL”(DIGITAL I/O SELECT)

Selects the SDIF-2 format, the AES/EBU format, or the IEC958 format as the digital audio input/output signal for recording and playback. The PCM-7010 synchronizes with the external sync signal selected by this menu.

The AES/EBU, IEC958 selector on the connector panel (DABK-7011B) selects the format: AES/EBU format or IEC958 format.

The setting is saved when you turn the power off.

Factory-set position: “AES-Ebu”(the AES/EBU format)



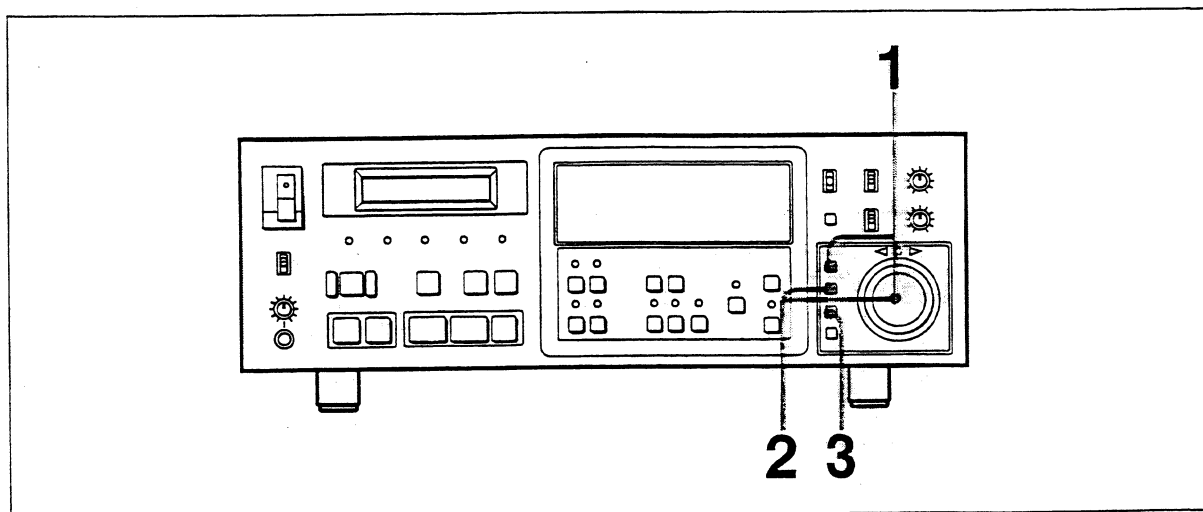
Selecting the audio signal format for digital input/output

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “dio SEL”.
The unit enters the selecting mode of the audio signal format for digital input/output.
- 2** Turn the shuttle dial while holding the DATA key down to select the audio signal format for digital input/output.
By turning the shuttle dial, the indicator flashing changes below.
“AES-Ebu” (AES-EBU): The unit selects the digital audio input/output signal in the AES/EBU format.
“iEc-958” (IEC-958): The unit selects the digital audio input/output signal in the IEC-958 format.
“SdiF-2”(SDIF-2): The unit selects the digital audio input/output signal in the SDIF-2 format. (This position is available only when a DABK-7011B is installed.)
- 3** Press the SET key.
Flashing stops and the selection of the audio signal format for digital input/output finishes.

Selecting the emphasis mode — “PrE EP”(PRE-EMPHASIS)

Turns emphasis ON or OFF for analog audio input.
The setting is saved when you turn the power off.

Factory-set position: “oFF”(OFF)



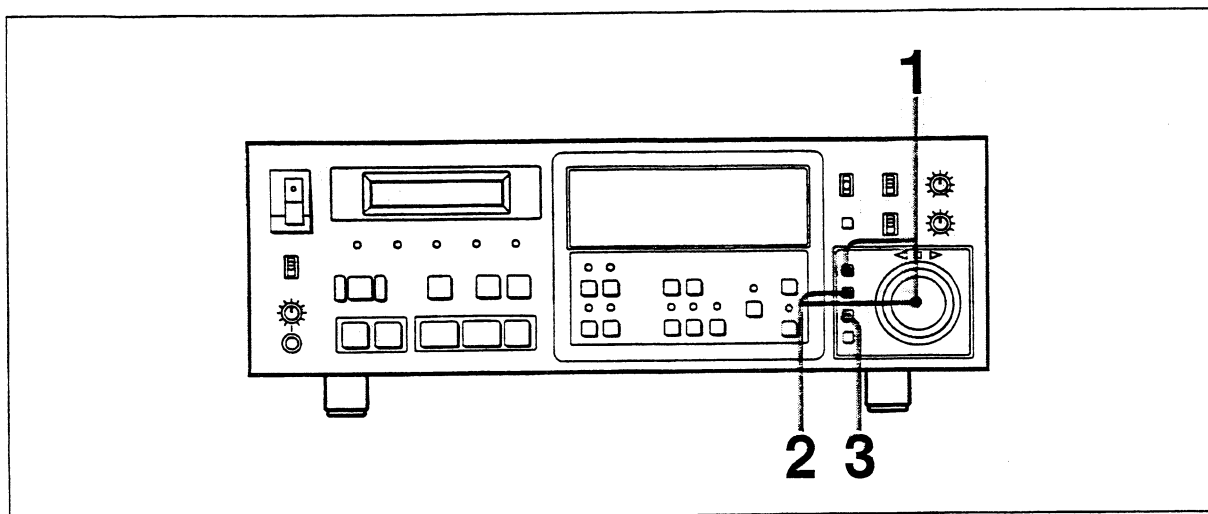
Selecting the emphasis mode

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “PrE EP”.
The unit enters emphasis selection mode.
- 2** Turn the shuttle dial while holding the DATA key down to select the emphasis mode.
By turning the shuttle dial, the indicator flashing changes from “on” to “oFF”.
“oFF”(OFF): emphasis OFF (We recommend this position.)
“on”(ON): emphasis ON
- 3** Press the SET key.
Flashing stops and the selection of the emphasis mode finishes.

Selecting the lock frequency range in external synchronization (word) mode (when a DABK-7011A/7011B is installed) — “SYnc nrr”(SYNC NARROW)

Selects the lock frequency range in external synchronization (word) mode (the setting of SYNC switch is EXT position).
The setting is saved when you turn the power off.

Factory-set position: “on”(ON)



Selecting the lock frequency range

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “SYnc nrr”.
The unit enters the selecting mode of the lock frequency range.
- 2** Turn the shuttle dial while holding the DATA key down to select the lock frequency range.
By turning the shuttle dial, the indicator flashing changes from “oFF” to “on”.
 “oFF”(OFF): wide lock frequency range → The unit locks within a $\pm 12.5\%$ frequency range. The unit displays the “WIDE” indication.
 “on”(ON): narrow lock frequency range → The unit locks within a ± 100 ppm frequency range. The unit displays no indication.
- 3** Press the SET key.
Flashing stops and the selection of the lock range finishes.

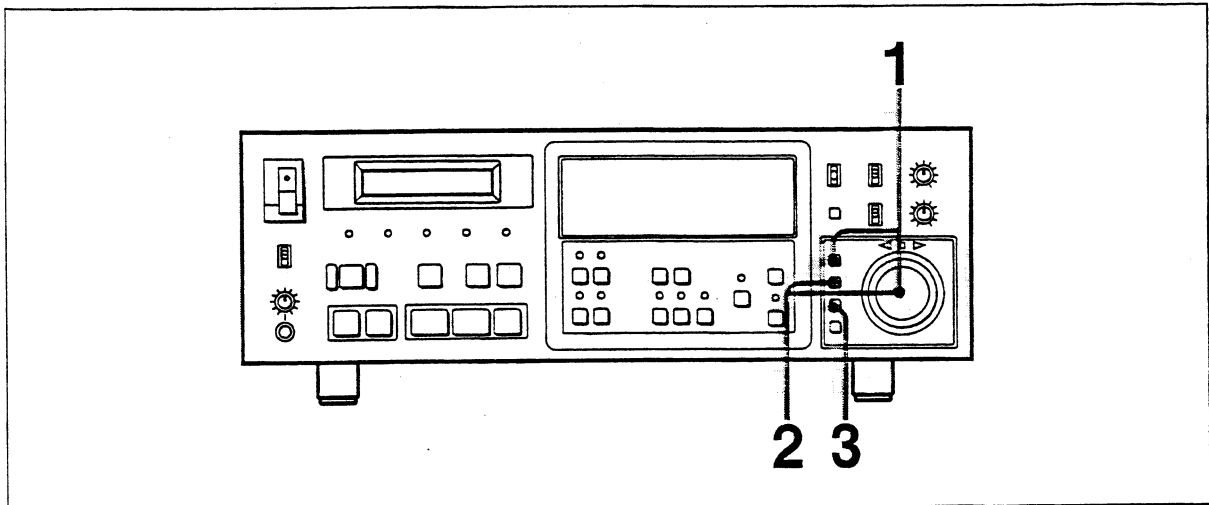
Note

You cannot record on the tape when the unit displays the “WIDE” indication.

Selecting the expanded setup menu — “[SEt Grd]”(SETUP MENU GRADE)

Selects the expanded setup menu display from the basic menu display.
The setting is saved when you turn the power off.

Factory-set position: “bASic”(BASIC)



Selecting the expanded setup menu

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “[SEt Grd]”.
The unit enters the setup menu grade selection mode.
- 2** Turn the shuttle dial while holding the DATA key down to select the setup menu level (expanded or basic).
By turning the shuttle dial, the indicator flashing changes from “bASic” to “EnHAnCED”.
 “bASic”(BASIC): The unit enters the basic setup menu mode.
 You cannot select the expanded setup menu.
 The unit skips to the next menu.
 “EnHAnCED”(ENHANCED): The unit enters the expanded setup menu mode. You can select the expanded setup menu.
- 3** Press the SET key.
The flashing stops and the selection of the menu is finished.

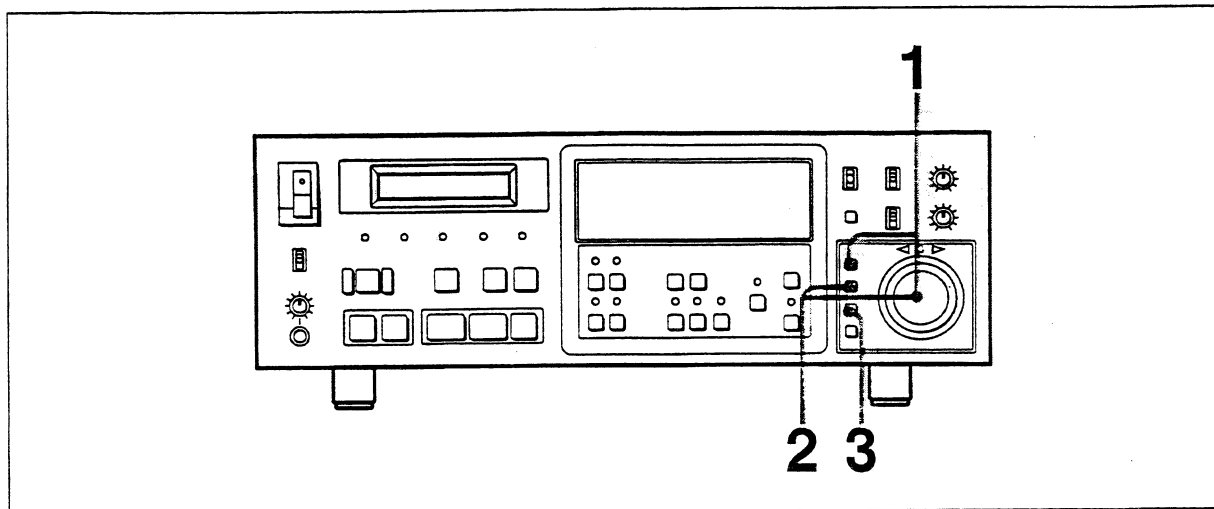
Selecting the setup menu level for the time code — “[SEt tc]”(SETUP MENU for TIME CODE)

Selects whether to open or close the menu for the time code in the setup menu.

The setting is saved when you turn the power off.

This function is available when: the setup menu selection is “EnHAnCED”(ENHANCED).

Factory-set position: “cLoSE”(CLOSE)



Opening or closing the setup menu for the time code

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “[SEt tc]”.
The unit enters the mode for the setup menu for the time code.
- 2** Turn the shuttle dial while holding the DATA key down to select the level of the setup menu for the time code.
By turning the shuttle dial, the indicator flashing changes from “cLoSE” to “oPEn”.
 “cLoSE”(CLOSE): You cannot select the setup menu for the time code.
 “oPEn”(OPEN): You can select the setup menu for the time code.
- 3** Press the SET key.
The flashing stops and the selection of the setup menu level for the time code finishes.

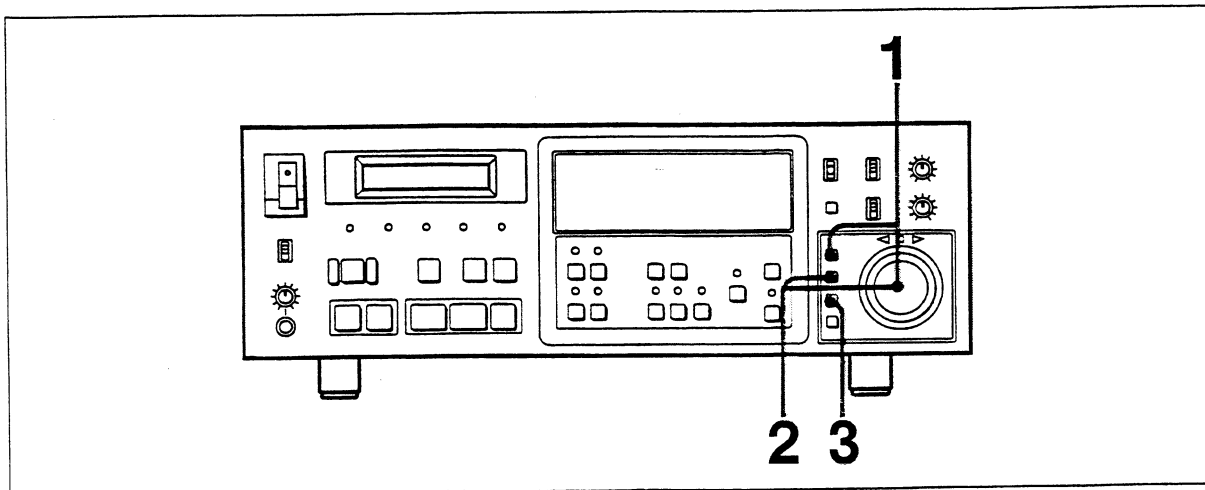
Selecting the operation mode of the internal time code generator (when a DABK-7030 is installed) — “FrEErun” (FREE RUN)

Selects the operation mode of the internal time code generator.
The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the time code is “oPEn”(OPEN).

Factory-set position: “oFF”(OFF)



Selecting the operation mode of the internal time code generator

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “FrEErun”.
The unit enters the operation selection mode for the internal time code generator.
- 2** Turn the shuttle dial while holding the DATA key down to select operation mode of the internal time code generator.
By turning the shuttle dial, the indicator flashing changes from “oFF” to “on”.
 “oFF”(OFF): rec run or regenerate. (When the unit enters the recording mode, the unit generates the time code from the initial value. When you do not define the initial value, the unit generates the time code according to the recorded time code on the tape. If you select an external time code (when a DABK-7010 is installed), the unit generates time code according to the external time code, regardless of the tape running mode.)
 “on”(ON): free run. (The unit generates the time code at all time having no relation to the tape running mode.) — The unit displays the “FREE RUN” indication.
- 3** Press the SET key.
The flashing stops and the selection of the operation mode of the internal time code generator finishes.

The initial value in the free run mode

- When you turn the power on: The unit defines “00H00M00s00F” as its initial value.
- When you change the setting of “rEc tc (RECORD TIME CODE)” in the setup menu from “inPut (INPUT)” to “int (INTERNAL)”: the unit defines the external time code as the initial value.

For details on selecting the recording time code, see the section on “rEc tc (RECORD TIME CODE)” (page 5-49) in Section 5-3-2 “Setup Menu”.

- When you set the initial value on the “GEN SET TIME” of the display key menu: the unit defines the set time as the initial value.

Selecting the time code output (when a DABK-7010 is installed) — “GEn out”(GENERATOR OUT)

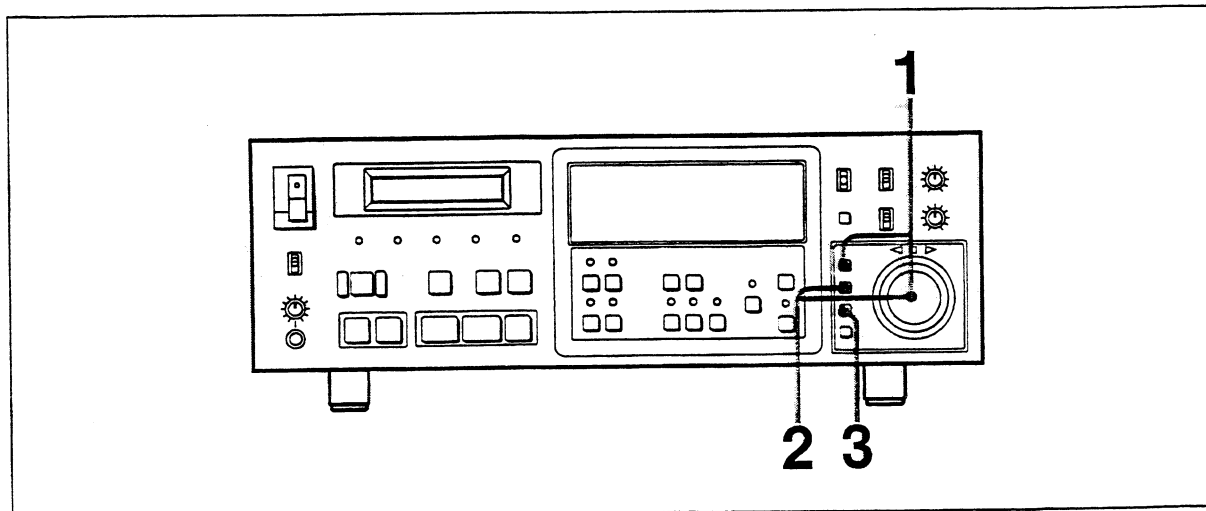
You can select the time code (the playback time code when OFF and the generator's time code when ON) output from the TIME CODE OUTPUT connector at the rear.

The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the time code is “oPEn”(OPEN).

Factory-set position: “oFF”(OFF)



Selecting the time code output

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “GEn out”.
The unit enters the selecting mode of the time code output.
- 2** Turn the shuttle dial while holding the DATA key down to select the time code output.
By turning the shuttle dial, the indicator flashing changes from “oFF” to “on”.
 “oFF”(OFF): The unit sends the playback time code.
 “on”(ON): The unit sends the generated time code of the internal time code generator.
- 3** Press the SET key.
The flashing stops and the selection of the time code output finishes.

Selecting whether to regenerate the external time code or not (when a DABK-7010 is installed) — “tc rEGEn”(TIME CODE REGENERATE)

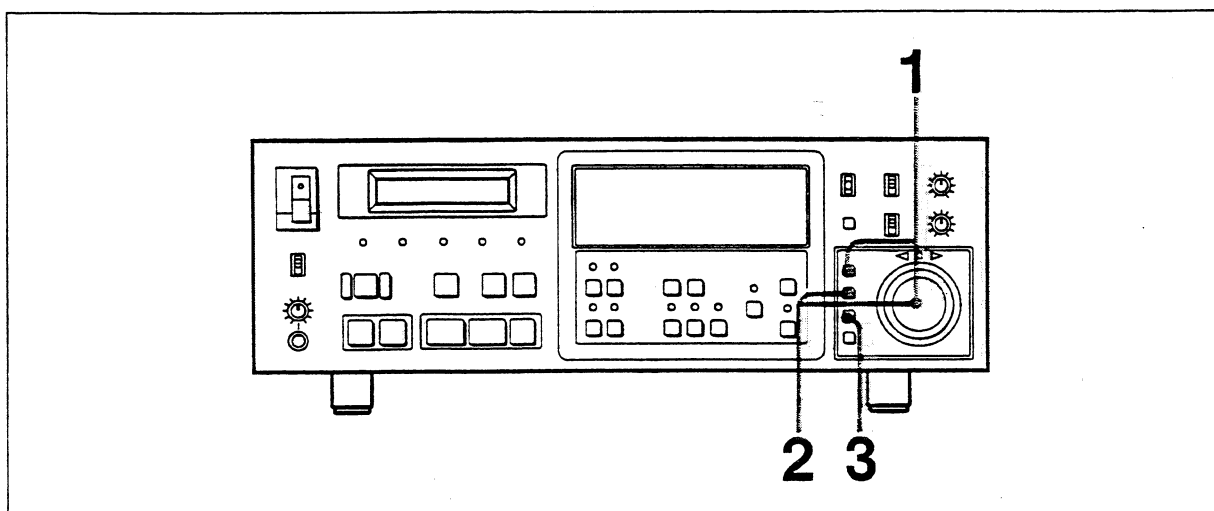
You can select whether to regenerate the external time code (ON) or not (OFF).

The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for time code is “oPEn”(OPEN).

Factory-set position: “on”(ON)



Selecting whether to regenerate the external time code or not

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “tc rEGEn”.
The unit enters the selection mode of whether or not to regenerate the external time code.
- 2** Turn the shuttle dial while holding the DATA key down to select whether or not.
By turning the shuttle dial, the indicator flashing changes from “oFF” to “on”.
 “oFF”(OFF): The unit doesn’t regenerate the external time code. The unit receives and generates the external time code as it is even if the external time code has the jitters (fluctuations).
 “on”(ON): The unit regenerates the external time code. The unit corrects the time code generation and the phase as much as possible.
- 3** Press the SET key.
The flashing stops and the selection whether to regenerate or not finishes.

Selecting the user bit when recording (when a DABK-7010 is installed) — “rEc ub”(REC USER BIT)

Selects the user bit according to the setting of the recording time code selector (TC SEL) or the user bit of the setting of the “rEc tc (RECORD TIME CODE)” in the setup menu (INTERNAL) when recording.

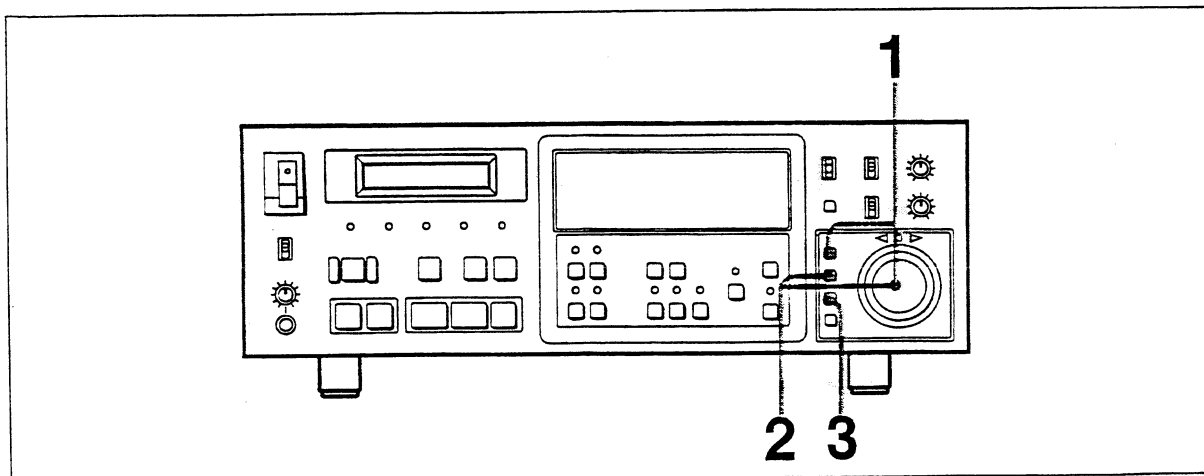
The setting is saved when you turn the power off.

For details on selecting the recording time code, see the section on “rEc tc (RECORD TIME CODE)” (page 5-49) in Section 5-3-2 “Setup Menu”.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the time code is “oPEn”(OPEN).

Factory-set position: “tc SEL”(TC SEL)



Selecting the user bit when recording

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “rEc ub”.
The unit enters the user bit selection mode.
- 2** Turn the shuttle dial while holding the DATA key down to select the user bit.
By turning the shuttle dial, the indicator flashing changes from “int” to “tc SEL”.
“int”(INTERNAL): The unit records the user bit of the internal time code generator or the user bit of the time code on the recorded tape.
“tc SEL”(TC SEL): When the setting of “rEc tc (RECORD TIME CODE)” in the setup menu is “inPut (INPUT)”, the unit records the user bit of the external time code. When the setting of the recording time code selector is “int (INTERNAL)”, the unit records the user bit of the internal time code generator or the user bit of the time code on the recorded tape.
- 3** Press the SET key.
The flashing stops and the selection of the user bit finishes.

Selecting whether to display the user bit data for the DISPLAY key menu or not — “ub diSP”(USER BIT DISPLAY)

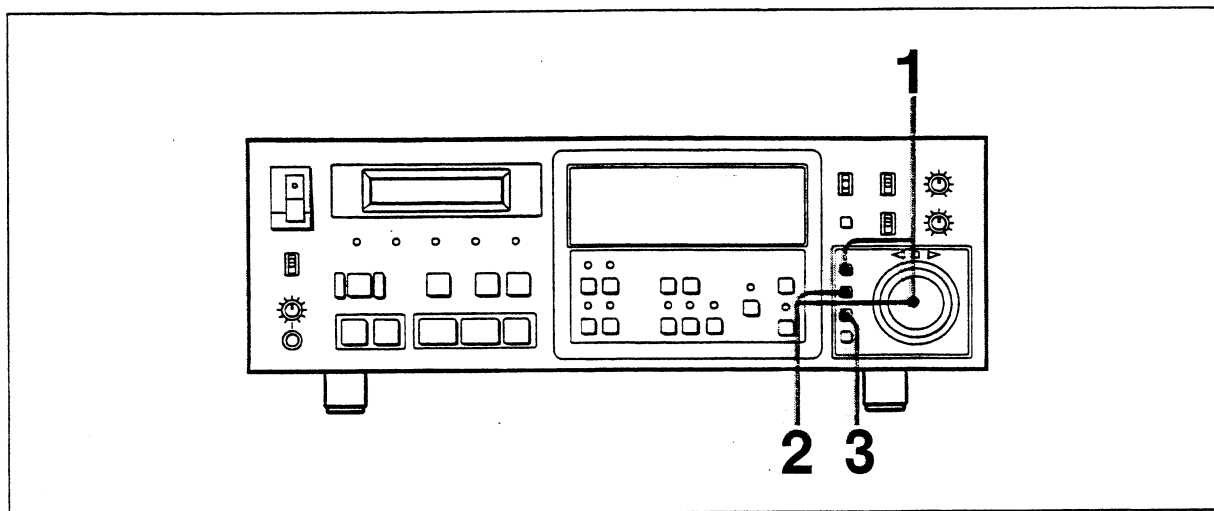
Selects whether to display the user bit data for the display key menu (ON) or not (OFF).

The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the time code is “oPEn”(OPEN).

Factory-set position: “oFF”(OFF)



Selecting whether to display the user bit data for the display key menu or not

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “ub diSP”.
The unit enters the selecting mode of whether to display the user bit data for the display key menu or not.
- 2** Turn the shuttle dial while holding the DATA key down to select whether or not.
By turning the shuttle dial, the indicator flashing changes from “oFF” to “on”.
 “oFF”(OFF): The unit doesn’t display the user bit data for the display key menu.
 “on”(ON): The unit displays the user bit data for the display key menu.
- 3** Press the SET key.
The flashing stops and the selection whether to display the user bit data or not finishes.

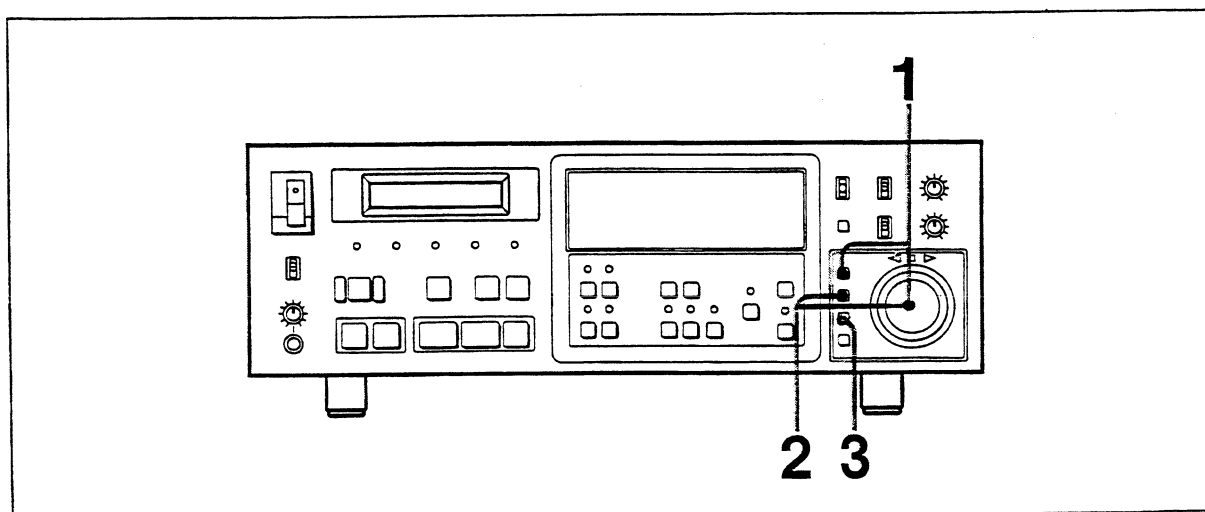
Selecting whether to apply the phase adjustment of the time code output to the analog audio signals or digital audio signals (when a DABK-7010 is installed) — “tc dLY”(TIME CODE DELAY)

Selects whether to apply the phase adjustment of the time code output signal to the analog audio signals (ANALOG OUTPUT) or the digital audio signals (DIGITAL OUTPUT). The selected audio output signals and time code output are output maintaining the phase relationship between both signals when both signals were recorded. The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the time code is “oPEn”(OPEN).

Factory-set position: “d out”(DIGITAL OUTPUT)



Selecting whether to apply the phase adjustment of the time code output to the analog audio output signals or digital audio output signals

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “tc dLY”.
The unit enters the selecting mode.
- 2** Turn the shuttle dial while holding the DATA key down.
By turning the shuttle dial, the indicator flashing changes from “A out” to “d out”.
“A out”(ANALOG OUTPUT): The unit adjusts the phase with the analog audio output signals.
“d out”(DIGITAL OUTPUT): The unit adjusts the phase with the digital audio output signals.
- 3** Press the SET key.
The flashing stops and the selection of whether to apply the phase adjustment of the time code output to the analog audio output signals or digital audio output signals finishes.

Phase adjustment between the input time code signal and the input audio signals for recording

The phase of the input audio signals (analog or digital) selected according to the setting of the AUDIO INPUT selector on the front panel is adjusted to the input time code automatically.

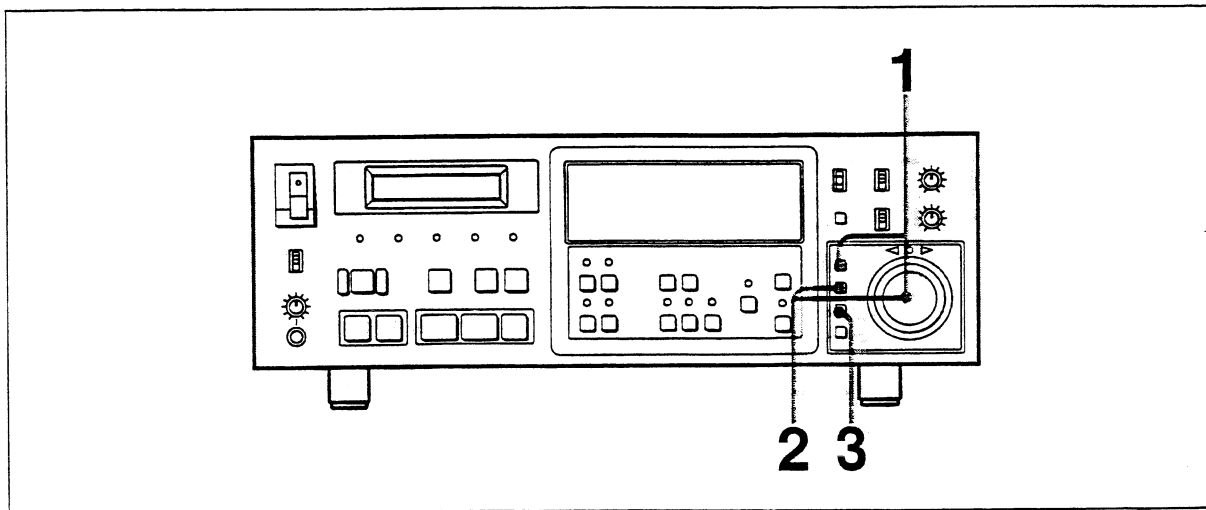
Selecting the setup menu level for the system control — “[SEt SYS]”(SETUP MENU for SYSTEM CONTROL)

Selects whether to open the setup menu for the system (OPEN) or not (CLOSE).

The setting is saved when you turn the power off.

This function is available when: the setup menu selection is “EnHAnCED”(ENHANCED).

Factory-set position: “cLoSE”(CLOSE)



Selecting the setup menu level for the system control

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “[SEt SYS]”.
The unit enters the setup menu selection mode for the system.
- 2** Turn the shuttle dial while holding the DATA key down to select the setup menu for the system.
By turning the shuttle dial, the indicator flashing changes from “cLoSE” to “oPEn”.
 “cLoSE”(CLOSE): You cannot select the setup menu for the system.
 “oPEn”(OPEN): You can select the setup menu for the system.
- 3** Press the SET key.
The flashing stops and the selection of the setup menu level for the system finishes.

Selecting whether to automatically write the Start ID or not during assemble recording — “S-id Auto”(START ID AUTO REC)

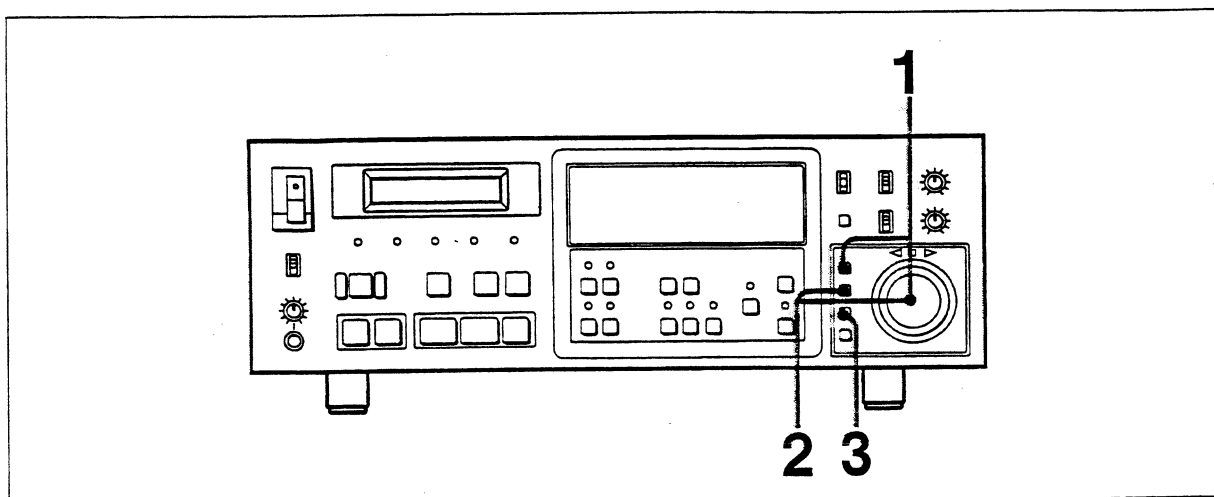
Selects whether to automatically write the Start ID (ON) or not (OFF) during assemble recording.

The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the system is “oPEN”(OPEN).

Factory-set position: “oFF”(OFF)



Selecting whether to automatically write the Start ID or not during assemble recording

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “S-id Auto”.
The unit enters the selecting mode for automatically writing the Start ID during assemble recording.
- 2** Turn the shuttle dial while holding the DATA key down.
By turning the shuttle dial, the indicator flashing changes from “oFF” to “on”.
“oFF”(OFF): The unit doesn’t automatically write the Start ID during assemble recording.
“on”(ON): The unit automatically writes the Start ID at the recording start point during assemble recording. The unit displays the “AUTO REC” indication on the display.
- 3** Press the SET key.
The flashing stops and the selection of whether or not to automatically write the Start ID during assemble recording is complete.

When writing the Start ID from the top of the tape, the unit automatically writes the Program Number starting from “01”.

For details about writing the Program Number, see the section on “Writing/erasing the Program Number” (page 4-14) in Section 4-1-6 “Basic Recording Procedure”.

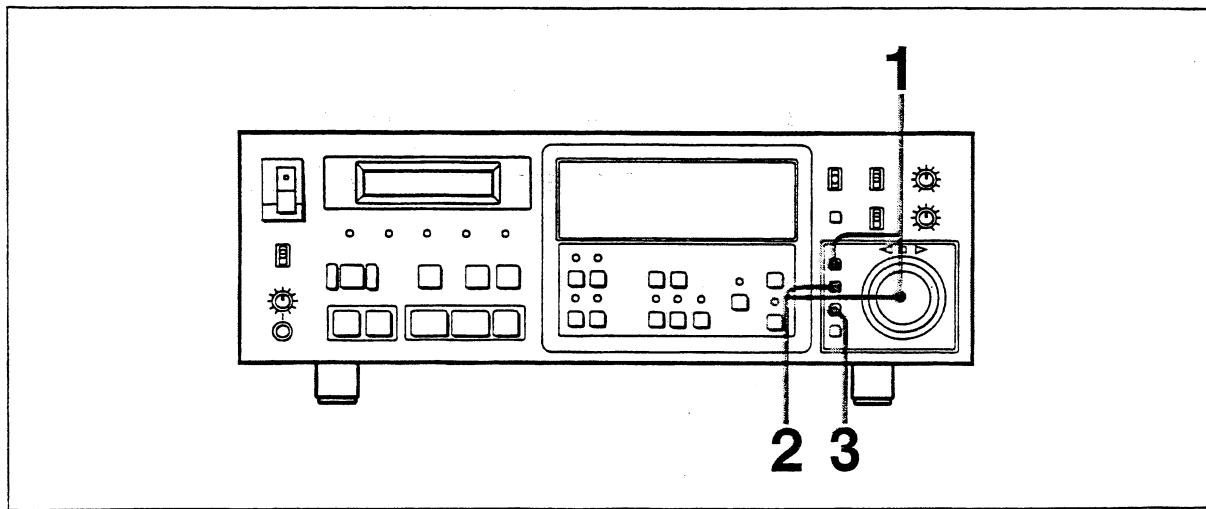
Selecting the copy ID which will be recorded within the main ID — “coPY id”(COPY ID)

Selects the copy ID which will be recorded within the main ID.
The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the system is “oPEn”(OPEN).

Factory-set position: “PEr”(PERMIT)



Selecting the copy ID which will be recorded within the main ID

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “coPY id”.
The unit enters of the copy ID selection mode.
- 2** Turn the shuttle dial while holding the DATA key down to select the copy ID.
By turning the shuttle dial, the indicator flashing changes as follows:
 - “PEr”(PERMIT): The unit records the copy ID (00) of which the unit permits to copy.
 - “inh”(INHIBIT): The unit records the copy ID (10) of which the unit inhibits to copy.
 - “PrErEc”(PRERECORDED): The unit records the copy ID (11) for the pre-recorded tape.
- 3** Press the SET key.
The flashing stops and selection of the copy ID which will be recorded within the main ID finishes.

The copy ID when digitally copying the digital audio signal input from a consumer digital audio tape recorder

When the AES/EBU, IEC958 selector is set to IEC958 while the unit performs digital copying with the consumer DAT recorder, the unit records the copy ID based on the rules of the Serial Copy Management System.

When the digital audio signal for professional DAT recorders is input to the IEC(958) INPUT connector on the connector panel (DABK-7011A/7011B), recording is impossible. Also, when the digital audio signal for the consumer DAT recorders is input to the DIGITAL INPUT connector on the connector panel (DABK-7011A/7011B) while the AES/EBU, IEC958 selector is set to AES/EBU, recording is impossible.

Digital copy of the tape with the copy ID recorded on the unit

To copy the tape with the copy ID recorded on the unit to an SCMS (Serial Copy Management System) digital audio tape recorder (consumer DAT recorder), the generation of the digital copy allowed for the tape is set as follows:

- **When “00”(PERMIT) is recorded:** Copy generation is not limited.
- **When “10”(INHIBIT) is recorded:** Digital copy is not allowed.
- **When “11”(PRERECORDED) is recorded:** One generation of digital copy is allowed.

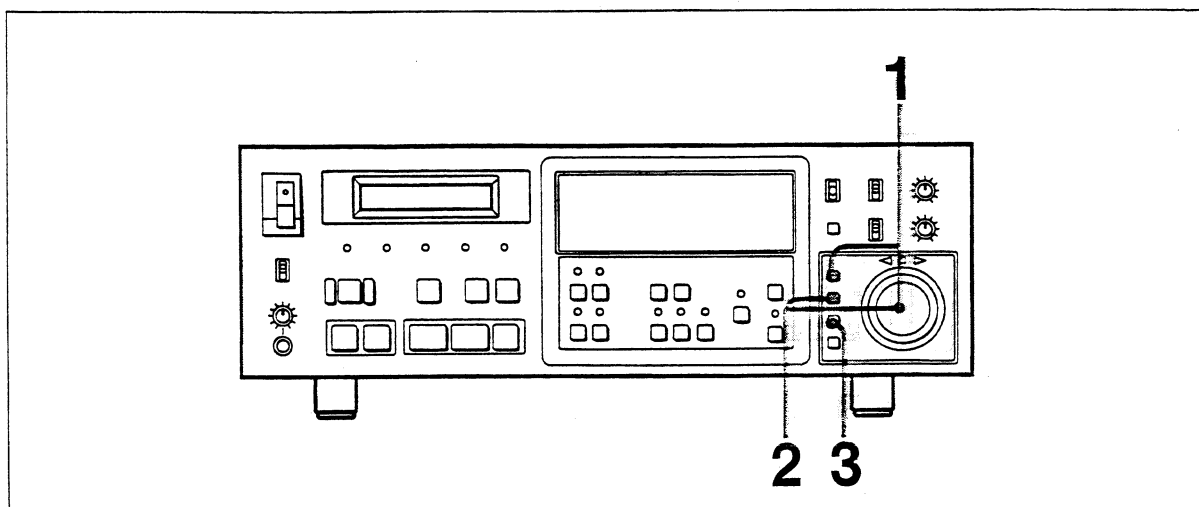
Selecting whether or not to automatically write the time data during assemble recording—"dAtEAuto"(DATE AUTO REC)

Selects whether or not to automatically write the time data at the recording start point during assemble recording.
The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is "EnHAnCED"(ENHANCED).
- the setup menu selection for the system is "oPen"(OPEN).

Factory-set position: "oFF"(OFF)



Selecting whether or not to automatically write the time data during assemble recording

- 1** Turn the shuttle dial while holding the MENU key down and set the display to "dAtEAuto".
The unit enters the mode for selecting whether or not to automatically write the time data during assemble recording.
- 2** Turn the shuttle dial while holding the DATA key down to select whether or not to automatically write the time data during assemble recording.
By turning the shuttle dial, the flashing indicator changes from "oFF" to "on".
 "oFF"(OFF): The unit doesn't automatically write the time data during assemble recording.
 "on"(ON): The unit automatically writes the time data at the recording start point during assemble recording.
- 3** Press the SET key.
Flashing stops and the selection of whether or not to automatically write the time data during assemble recording finishes.

See the section on "tc bASE(TC BASE)" (page 5-45) in Section 5-3-2 "Setup Menu" for displaying the time data.

See the section on "dAtE AdJ(DATE ADJUST)" (page 5-82) in Section 5-3-2 "Setup Menu" for setting the time of the internal clock.

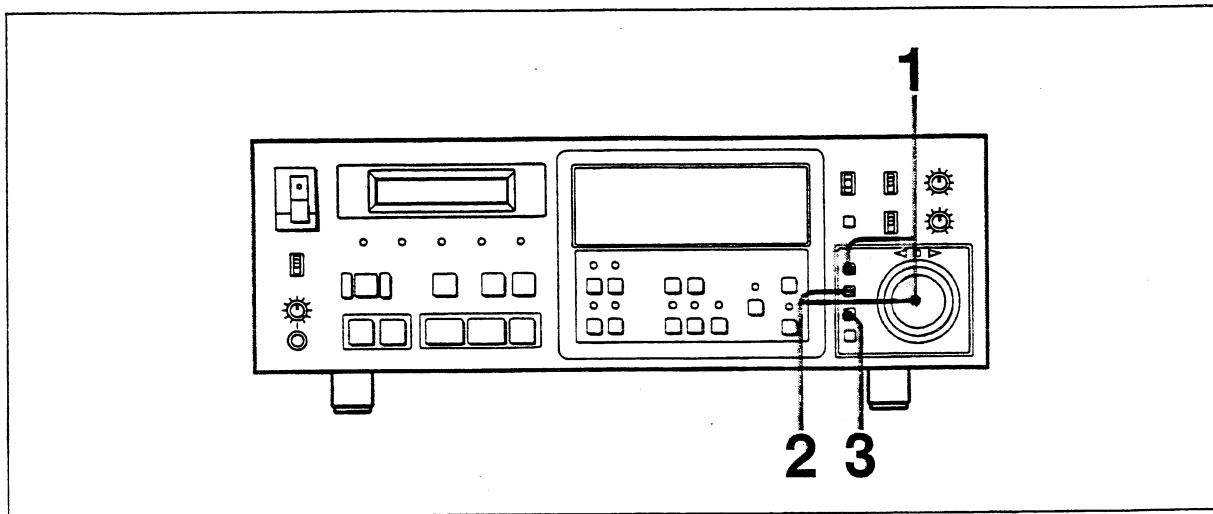
Selecting whether or not to synchronize the playback time code with the phase of the input video signal during playback (when a DABK-7010 is installed) — “SYncPb”(SYNC PB)

Selects whether or not to synchronize the playback time code with the phase of the input video signal during playback (it is controlled by a variable speed function until the sync locks). Select this when an external video sync signal is input to the REF VIDEO INPUT connector and when the time code format is not set to film time code. The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHancEd”(ENHANCED).
- the setup menu selection for the system is “oPEn”(OPEN).

Factory-set position: “EnAbLE”(ENABLE)



Selecting whether or not to synchronize the playback time code with the phase of the input video signal during playback

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “SYncPb”.
The unit enters the selecting mode of whether or not to match the sync of the input video signal with the playback time code.
- 2** Turn the shuttle dial while holding the DATA key down.
By turning the shuttle dial, the indicator flashing changes from “EnAbLE” to “diSAbLE”.
“EnAbLE”(ENABLE): The unit matches the phase of the playback time code with that of the input video sync signal.
“diSAbLE”(DISABLE): The unit doesn't match both phases.
It plays back in the normal playback mode.
- 3** Press the SET key.
The flashing stops and the selection of whether or not to synchronize the playback time code with the phase of the input video signal during playback finishes.

Note

When you set only the above item to "SYNC PB ENABLE", "SYNC PB" does not appear on the display. When playback starts while inputting the video sync signal, "SYNC PB" appears. When playback stops, it disappears. To match the frame phase between the unit and the video equipment, set to "SYNC PB".

Selecting whether to stop with rollback or not — “rLb StoP”(ROLLBACK STOP)

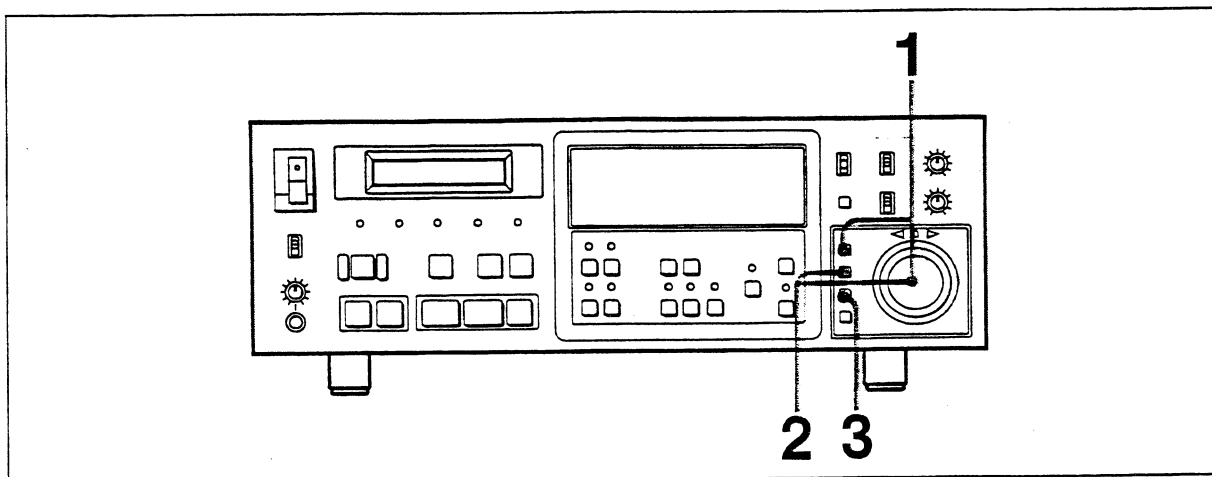
You can select whether to stop with rollback (ON) or not (OFF) when the tape stops in the assemble recording mode.

The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the system is “oPEn”(OPEN).

Factory-set position: “on”(ON)



Selecting whether to stop with rollback or not

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “rLb StoP”.
The unit enters the selecting mode of whether to stop with rollback or not.
- 2** Turn the shuttle dial while holding the DATA key down to select whether or not to stop with rollback.
By turning the shuttle dial, the indicator flashing changes from “oFF” to “on”.
 “oFF”(OFF): The unit doesn’t stop with rollback when the tape stops in the assemble recording mode.
 “on”(ON): The unit stops with rollback when the tape stops in the assemble recording mode.
- 3** Press the SET key.
The flashing stops and selection of whether to stop with rollback or not finishes.

The operation when the setting for rollback is set to ON

When the setting for the rollback is set to ON, the tape is rolled back about 1.5 seconds from the point you have pressed the STOP key, and the tape stops. If you restart assemble recording while the unit is in this state, you can connect the signal to the last recorded signal.

Selecting whether or not to activate the memory start when you turn the power on (when a DABK-7012 is installed) — “iS dFLt”(MEMORY START DEFAULT)

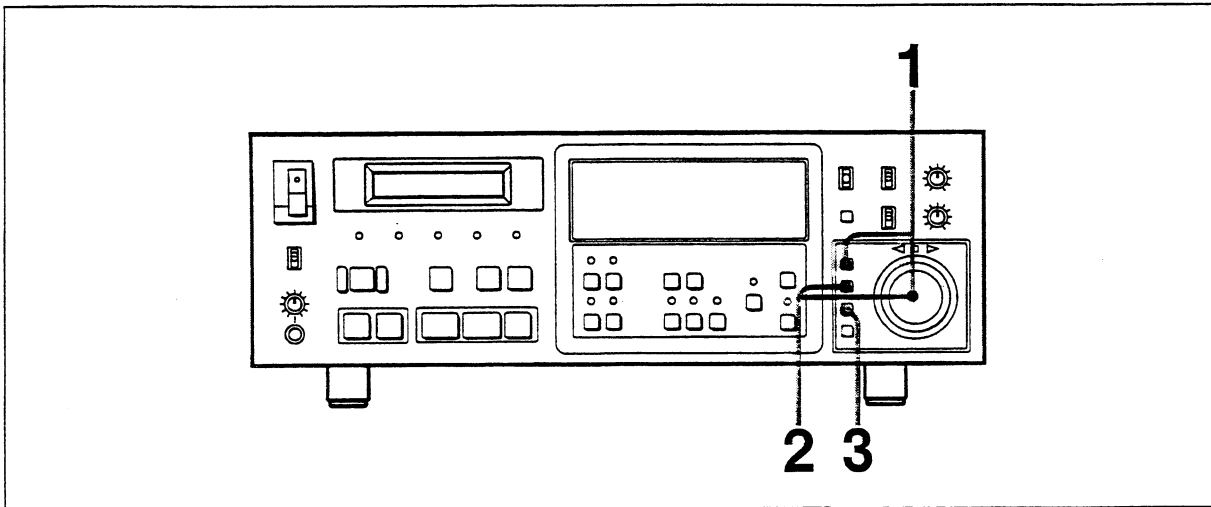
Selects whether to activate the memory start when you turn the power on (ON) or not (OFF).

The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the system is “oPEn”(OPEN).

Factory-set position: “oFF”(OFF)



Selecting whether or not to activate memory start when power-on

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “iS dFLt”.
The unit enters the selecting mode of whether or not to activate memory start when power-on.
- 2** Turn the shuttle dial while holding the DATA key down.
By turning the shuttle dial, the indicator flashing changes from “oFF” to “on”.
 “oFF”(OFF): The unit doesn’t activate memory start when power-on.
 “on”(ON): The unit activates memory start when power-on.
- 3** Press the SET key.
The flashing stops and the selection of whether to activate the memory start when power-on or not finishes.

Note

Keep the setting at “on” to be able to use the unit always in memory start mode.

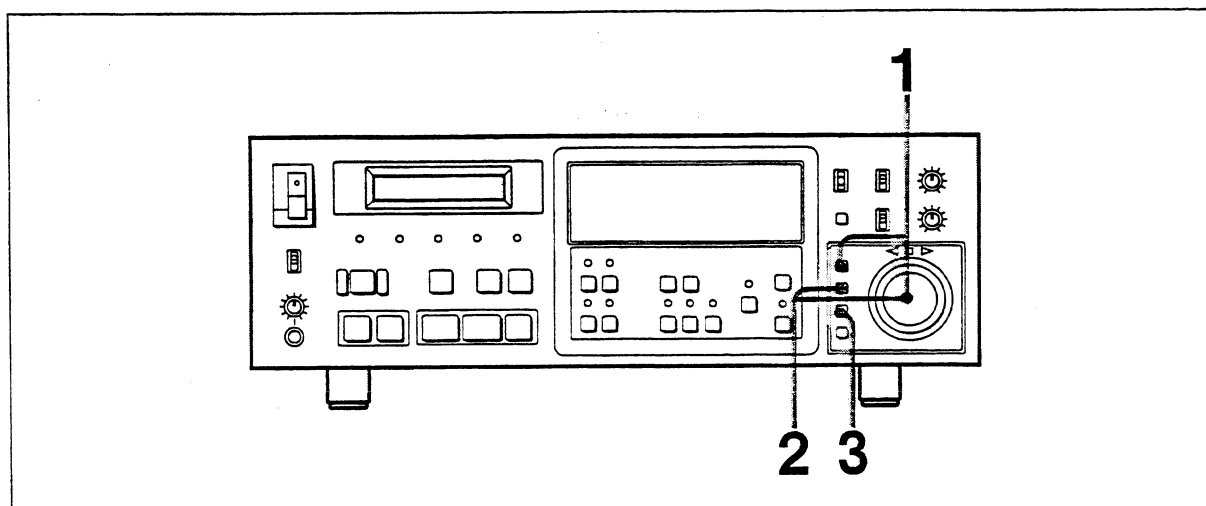
Selecting the duration (delay time) to output the sound after pressing the PLAY key for memory start playback (when a DABK-7012 is installed) — “iS dLY-t”(MEMORY START DELAY TIME)

You can select the duration (delay time) to output the sound after pressing the PLAY key for memory start playback. The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the system is “oPEn”(OPEN).

Factory-set position: “0”(no duration)



Selecting the duration (delay time) to output the sound after pressing the PLAY key for memory start playback

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “iS dLY-t”.
The unit enters the selecting mode of the duration (delay time) to output the sound after pressing the PLAY key for memory start playback.

(Continued on next page)

2 Turn the shuttle dial while holding the DATA key down to select the duration.

By turning the shuttle dial, the indicator flashing changes as follows:

“0”(0msec.): The duration (delay time) is 0 milliseconds (no duration).

“50”(50msec.): The duration (delay time) is 50 milliseconds (0.05 seconds).

“100”(100msec.): The duration (delay time) is 100 milliseconds (0.1 seconds).

“200”(200msec.): The duration (delay time) is 200 milliseconds (0.2 seconds).

“300”(300msec.): The duration (delay time) is 300 milliseconds (0.3 seconds).

“400”(400msec.): The duration (delay time) is 400 milliseconds (0.4 seconds).

“500”(500msec.): The duration (delay time) is 500 milliseconds (0.5 seconds).

3 Press the SET key.

The flashing stops and the selection of the duration (delay time) finishes.

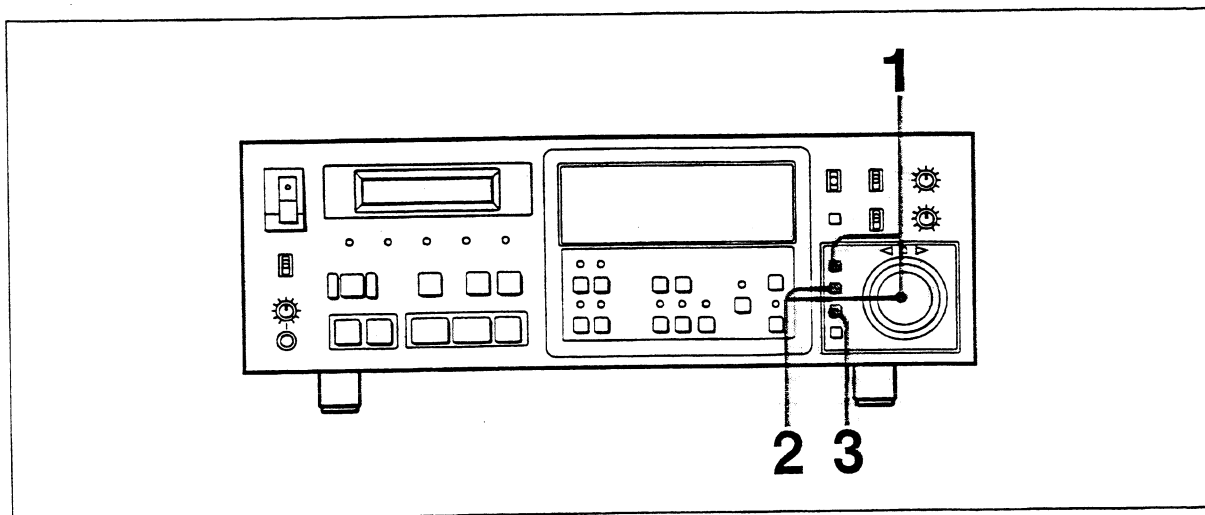
Selecting whether or not to accept the command from the INPUT MONITOR key when playing back in local mode — “inPut-S”(INPUT SWITCH)

You can select whether to accept the command from the INPUT MONITOR key (ENABLE) or not (DISABLE) when playing back in local mode. This setting will prevent misoperations during on-air. The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the system is “oPEn”(OPEN).

Factory-set position: “EnAbLE”(ENABLE)



Selecting whether or not to accept the command from the INPUT MONITOR key when playback in local mode

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “inPut-S”.
The unit enters the selecting mode of whether or not to accept the command from the INPUT MONITOR key when played back in local mode.
- 2** Turn the shuttle dial while holding the DATA key down to select whether or not to accept the command from the INPUT MONITOR key.
By turning the shuttle dial, the indicator flashing changes from “diSAbLE” to “EnAbLE”.
 “diSAbLE”(DISABLE): The unit doesn't accept the command from the INPUT MONITOR key when playing back in local mode.
 “EnAbLE”(ENABLE): The unit accepts the command from the INPUT MONITOR key when playing back in local mode.
- 3** Press the SET key.
The flashing stops and the selection of whether or not to accept the command from the INPUT MONITOR key when playing back in local mode is complete.

Selecting whether to accept the command from the tape transport control keys or not when playback in the local mode — “PANEL-S”(PANEL SWITCH)

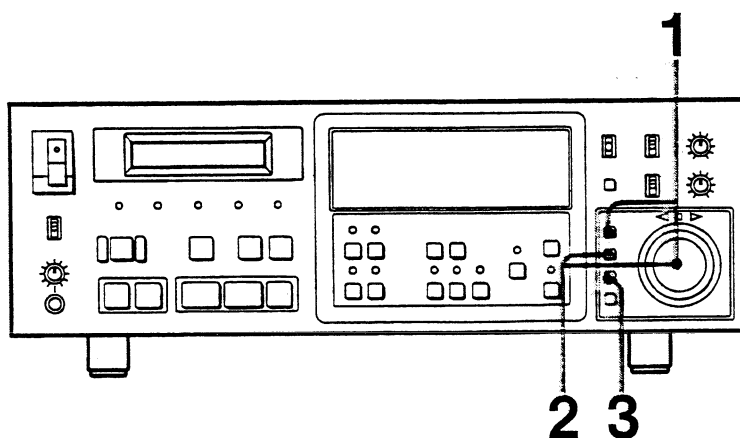
Selects whether to accept the command from the tape transport control keys on the front panel (ENABLE) or not (DISABLE) when playing back in the local mode. This setting will prevent misoperations while operating the fader controller.

The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the system is “oPEn”(OPEN).

Factory-set position: “EnAbLE”(ENABLE)



Selecting whether or not to accept the command from the tape transport control keys when playing back in the local mode

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “PANEL-S”.
The unit enters the selecting mode of whether or not to accept the command from the tape transport control keys.
- 2** Turn the shuttle dial while holding the DATA key down.
By turning the shuttle dial, the indicator flashing changes from “diSAbLE” to “EnAbLE”.
 “diSAbLE”(DISABLE): The unit doesn’t accept the command from the tape transport control keys when playing back in the local mode.
 “EnAbLE”(ENABLE): The unit accepts the command from the tape transport control keys when playing back in the local mode.
- 3** Press the SET key.
The flashing stops and the selection of whether or not to accept the command from the tape transport control keys when playing back in the local mode is finished.

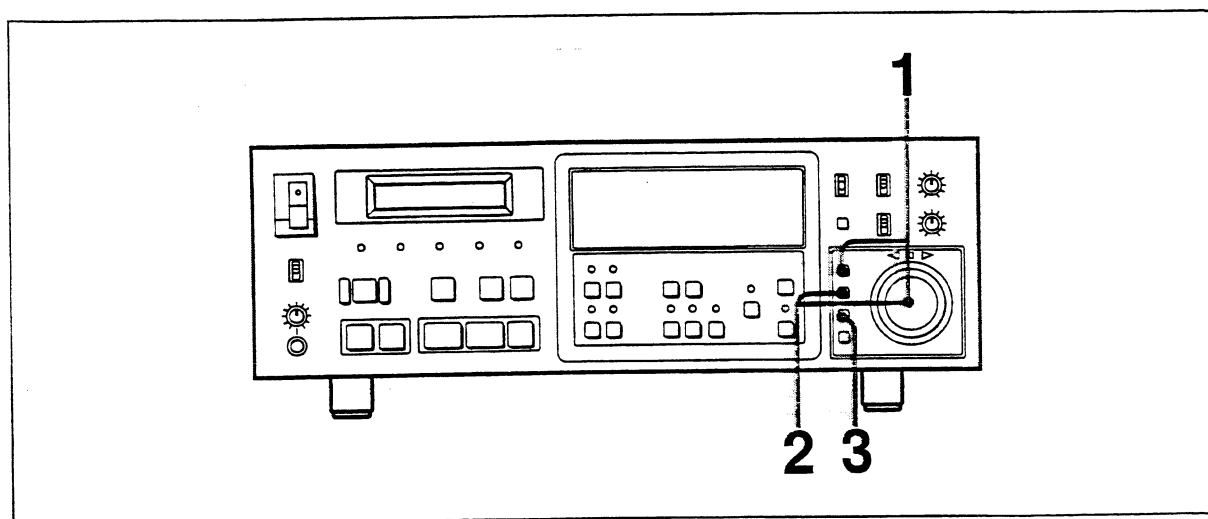
Selecting whether to shift the mode to STOP mode or PLAY mode after exiting the cue mode by pressing the CUE key during cue mode — “AFtr cuE”(AFTER CUE)

You can select whether to shift the mode to STOP mode (STOP) or PLAY mode (PLAY) after exiting the cue mode. The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the system is “oPEN”(OPEN).

Factory-set position: “StoP”(STOP)



Selecting whether to shift the mode to STOP mode or PLAY mode after exiting the cue mode

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “AFtr cuE”.
The unit enters the selecting mode of whether to shift the mode to STOP mode or PLAY mode after exiting the cue mode. Do this by pressing the CUE key during cue mode.
- 2** Turn the shuttle dial while holding the DATA key down.
By turning the shuttle dial, the indicator flashing changes from “StoP” to “PLAY”.
“**StoP**”(STOP): The unit shifts to STOP mode after exiting the cue mode. Do this by pressing the CUE key during cue mode.
“**PLAY**”: The unit shifts to PLAY mode after exiting the cue mode. Do this by pressing the CUE key during cue mode.
- 3** Press the SET key.
The flashing stops and the selection of whether to shift the mode to STOP mode or PLAY mode after exiting the cue mode is complete.

Selecting the operation mode of the REMOTE (8P) connector—"r-8Pin" (REMOTE 8-PIN)

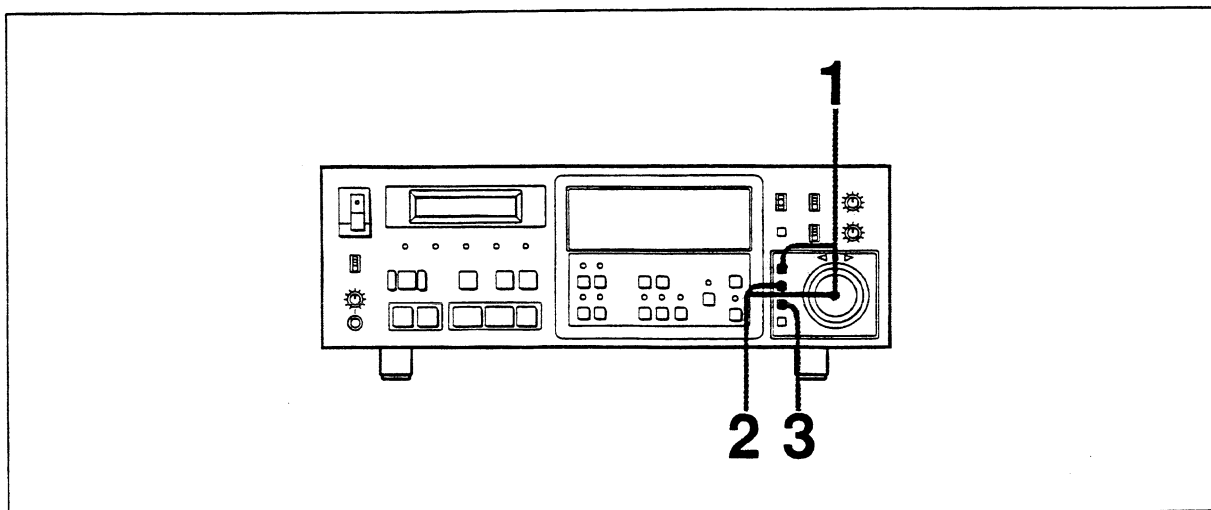
When the fader connects to the REMOTE (8P) connector of the unit, the unit selects the operation mode of the REMOTE (8P) connector in two settings; the PLAY command operation mode or the PLAY-STOP command operation mode. Select the operation mode according to the fader connected to REMOTE (8P) connector.

The unit is controlled by the PLAY command of the remote controller. The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is "EnHAnCED" (ENHANCED).
- the setup menu selection for the system is "oPEn" (OPEN).

Factory-set position: "PLAY" (PLAY command mode)



Selecting the operation mode of the REMOTE (8P) connector

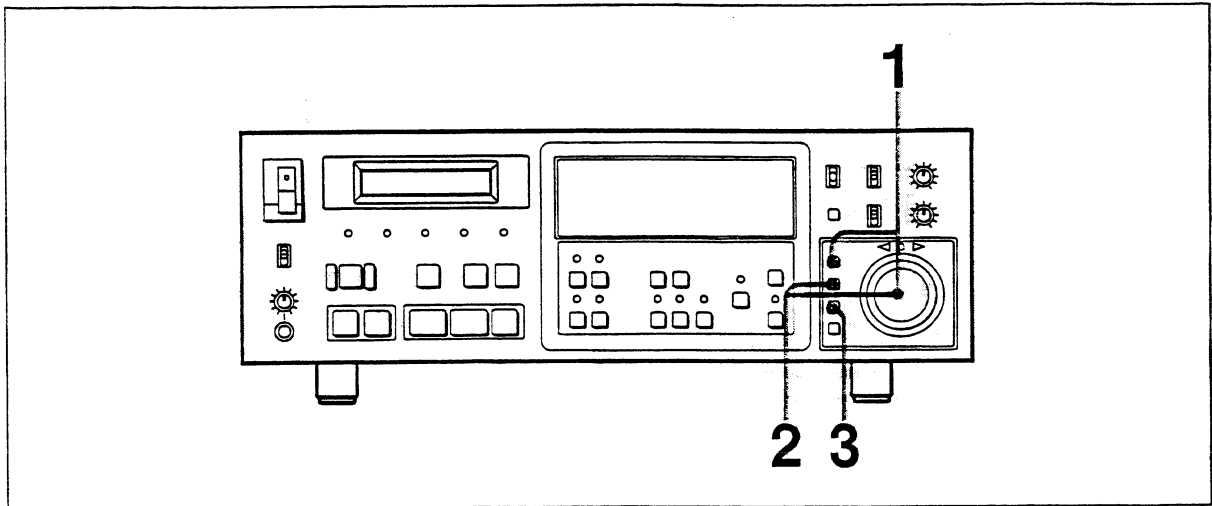
- 1** Turn the shuttle dial while holding the MENU key down and set the display to "r-8Pin".
The unit enters the selecting mode of the operation mode of the REMOTE (8P) connector.
- 2** Turn the shuttle dial while holding the DATA key down to select the operation mode.
By turning the shuttle dial, the indicator flashing changes from "PLAY" to "PLAY StoP".
 "PLAY" (PLAY): The unit operates the PLAY command mode.
 "PLAY StoP" (PLAY STOP): The unit operates the PLAY-STOP command mode.
- 3** Press the SET key.
The flashing stops and the selection of the operation mode finishes.

Selecting the setup menu level for the display — “[SEt dSP]”(SETUP MENU for DISPLAY)

Selects the setup menu level for the display, that is, whether to open the setup menu for the display (OPEN) or not (CLOSE). The setting is saved when you turn the power off.

This function is available when: the setup menu selection is “EnHAnCED”(ENHANCED).

Factory-set position: “cLoSE”(CLOSE)



Selecting the setup menu level for the display

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “[SEt dSP]”.
The unit enters the selection mode of the setup menu for the display.
- 2** Turn the shuttle dial while holding the DATA key down to select the setup menu level for the display.
By turning the shuttle dial, the indicator flashing changes from “cLoSE” to “oPEn”.
 “cLoSE”(CLOSE): You cannot select the setup menu for the display.
 “oPEn”(OPEN): You can select the setup menu for the display.
- 3** Press the SET key.
The flashing stops and the selection of the setup menu level for the display finishes.

Selecting the state that turns on the PB CONDITION indicator — “Pb cond” (PB CONDITION)

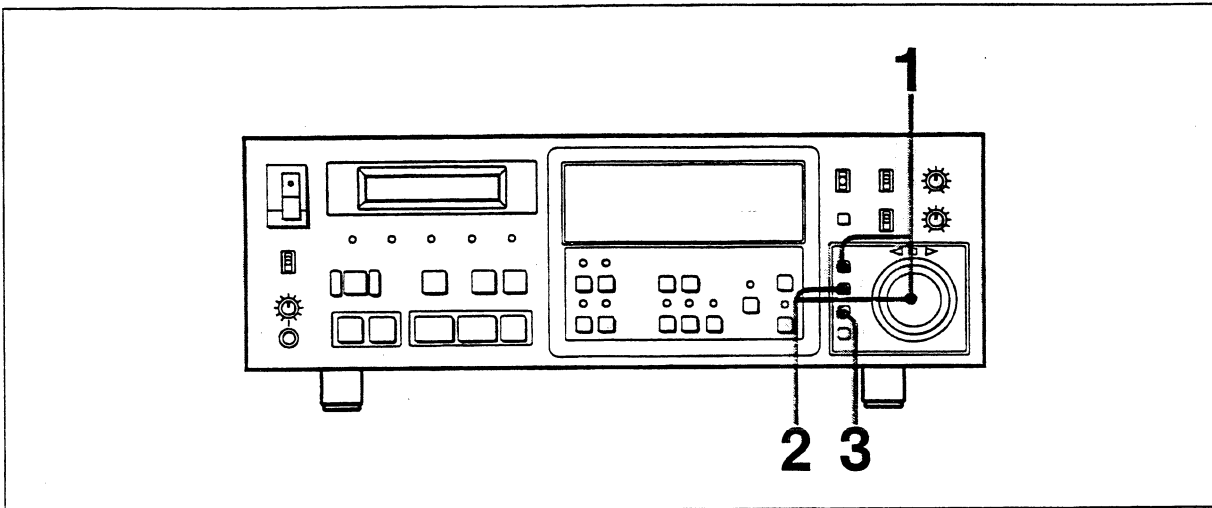
Selects the state that turns on the PB CONDITION indicator on the front panel.

The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the display is “oPEN”(OPEN).

Factory-set position: “bad cond”(BAD CONDITION)



Selecting the state that turns on the PB CONDITION indicator

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “Pb cond”.
The unit enters the selection mode for the state that turns on the PB CONDITION indicator.
- 2** Turn the shuttle dial while holding the DATA key down to select the condition that turns the PB CONDITION indicator.
By turning the shuttle dial, the indicator flashing changes as follows:
 - “bAd cond”(BAD CONDITION): Lights if the error rate worsens and interpolation or muting might occur.
 - “corr”(CORRECTION): Lights when an error occurs and a correction is made.
 - “intP”(INTERPOLATION): Lights when an error occurs and interpolation is done.
- 3** Press the SET key.
The flashing stops and the selection of the state that turns on the PB CONDITION indicator is finished.

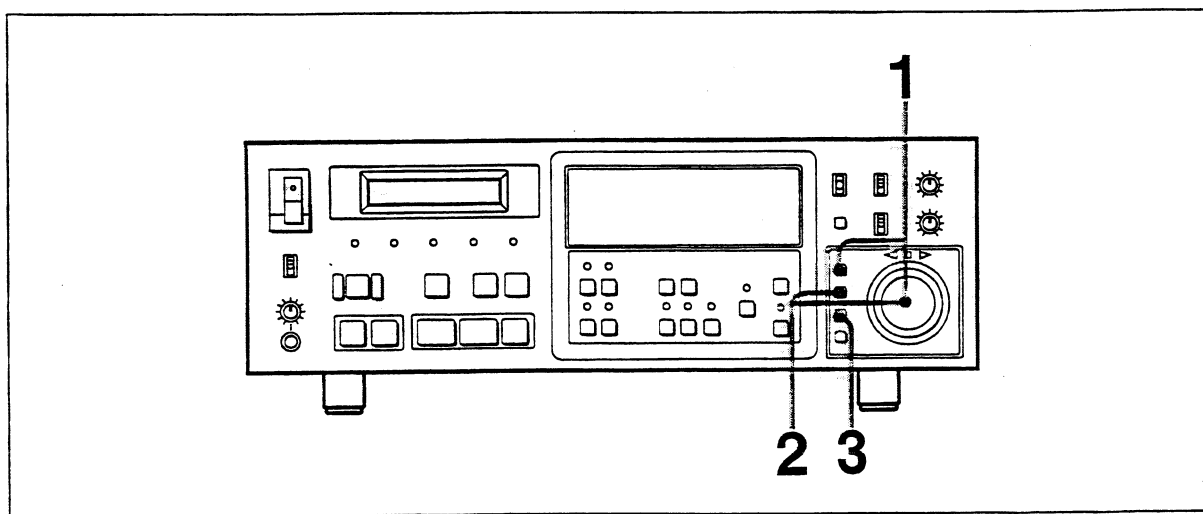
Adjusting the brightness of the display on the front panel — “FL diSP” (FL DISPLAY)

Adjusts the brightness of the display on the front panel.
The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the display is “oPEn”(OPEN).

Factory-set position: “d-1”(DUTY-1)



Adjusting the brightness of the display on the front panel

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “FL diSP”.
The unit enters the brightness adjusting mode for the display on the front.
- 2** Turn the shuttle dial while holding the DATA key down to adjust the brightness of the display.
By turning the shuttle dial, the indicator flashing changes as follows.
 - “d-1”(DUTY-1): a maximum bright level
 - “d-2”(DUTY-2): a 2nd bright level
 - “d-3”(DUTY-3): a 3rd bright level
 - “d-4”(DUTY-4): a minimum bright level
- 3** Press the SET key.
The flashing stops and the setting finishes.

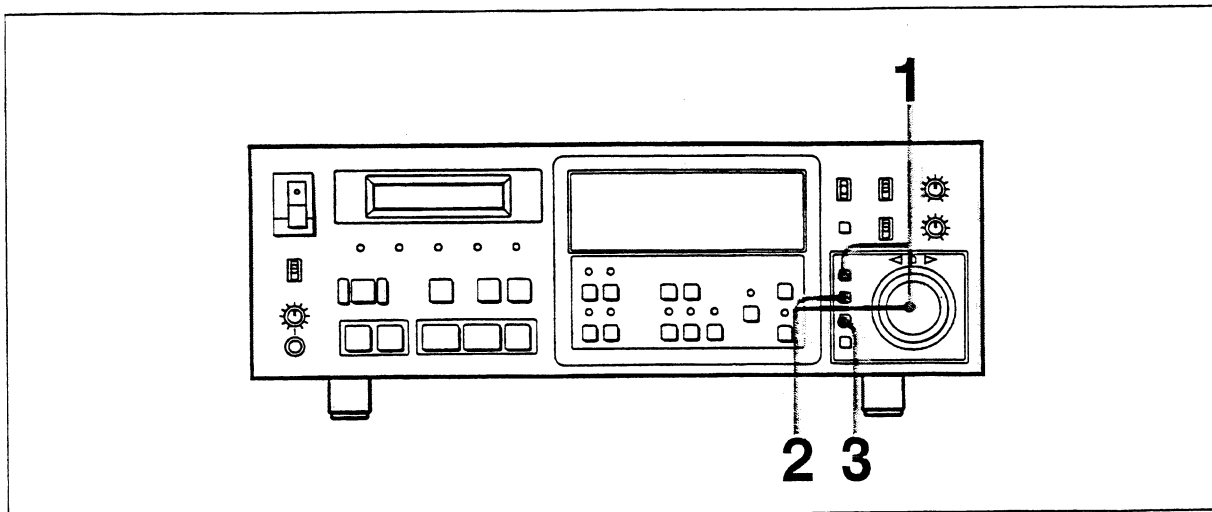
Setting the time of the internal clock—"dAtE AdJ"(DATE ADJUST)

Sets the time of the internal clock. According to this setting, the unit records the time data when assemble recording starts. The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is "EnHAnCED"(ENHANCED).
- the setup menu selection for the display is "oPEn"(OPEN).

Factory-set position: Japan time



Setting the time of the internal clock

- 1** Turn the shuttle dial while holding the MENU key down and set the display to "dAtE AdJ".
The unit enters the time setting mode of the internal clock.
- 2** Press the DATA key.
The year digits flash.
- 3** Turn the shuttle dial while holding the DATA key down to set the year digits.
- 4** Press the SET key again.
Flashing stops and the year digits are fixed.

By repeating steps **2** to **4**, set all digits (month, day, hour, minute, and second).

See the section on "tc bASE (TC BASE)" (page 5-45) in Section 5-3-2 "Setup Menu" for displaying the time data.

See the section on "dAtEAuto (DATE AUTO REC)" (page 5-67) in Section 5-3-2 "Setup Menu" for selecting whether or not to automatically write the time data during assemble recording.

Selecting the level meter peak hold mode — “P-HoLd”(PEAK HOLD)

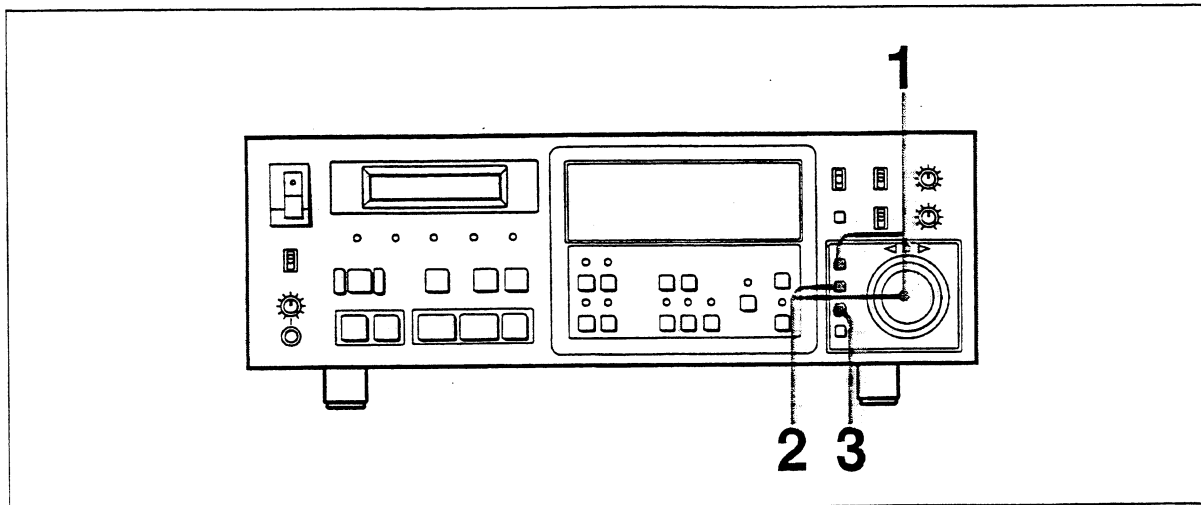
Selects the level meter peak hold mode.

The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the display is “oPEn”(OPEN).

Factory-set position: “Auto”(AUTO)



Selecting the level meter peak hold mode

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “P-HoLd”.
The unit enters the selection mode of the level meter peak hold mode.
- 2** Turn the shuttle dial while holding the DATA key down.
By turning the shuttle dial, the indicator flashing changes from “Auto” to “HoLd”.
 “Auto”(AUTO): The unit holds the peak level as long as the time you set in “HoLd-t” in the setup menu.
 “HoLd”(HOLD): The unit keeps on holding the peak level until you press EJECT key or until you press the RESET key while holding the DATA key down.
- 3** Press the SET key.
The flashing stops and the selection of the level meter peak hold mode is complete.

To release the peak hold

When you press the RESET key while holding the DATA key down while the setting indicates “HoLd”(HOLD), the unit releases the holding segment of the level meters.

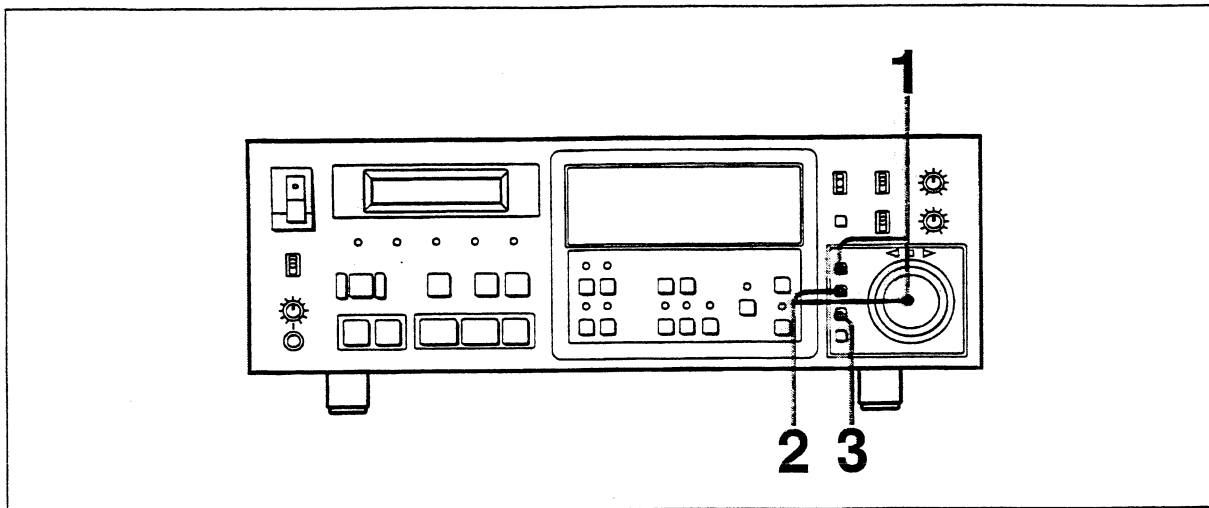
Selecting the hold mode for the “OVER” segments of the level meters — “o-HoLd”(OVER HOLD)

Selects the hold mode for the “OVER” segments of the level meters. The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCed”(ENHANCED).
- the setup menu selection for the display is “oPEn”(OPEN).

Factory-set position: “on”(ON)



Selecting the hold mode for the “OVER” segments of the level meters

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “o-HoLd”.
The unit enters the selection mode of the hold mode for the “OVER” segments of the level meters.
- 2** Turn the shuttle dial while holding the DATA key down.
By turning the shuttle dial, the indicator flashing changes from “oFF” to “on”.
 “oFF”(OFF): The segments are not held to light.
 “on”(ON): The segments are held to light according to the peak hold mode setting by “P-HoLd” (PEAK HOLD).
- 3** Press the SET key.
The flashing stops and the selection of the hold mode for the “OVER” segment of the level meters finishes.

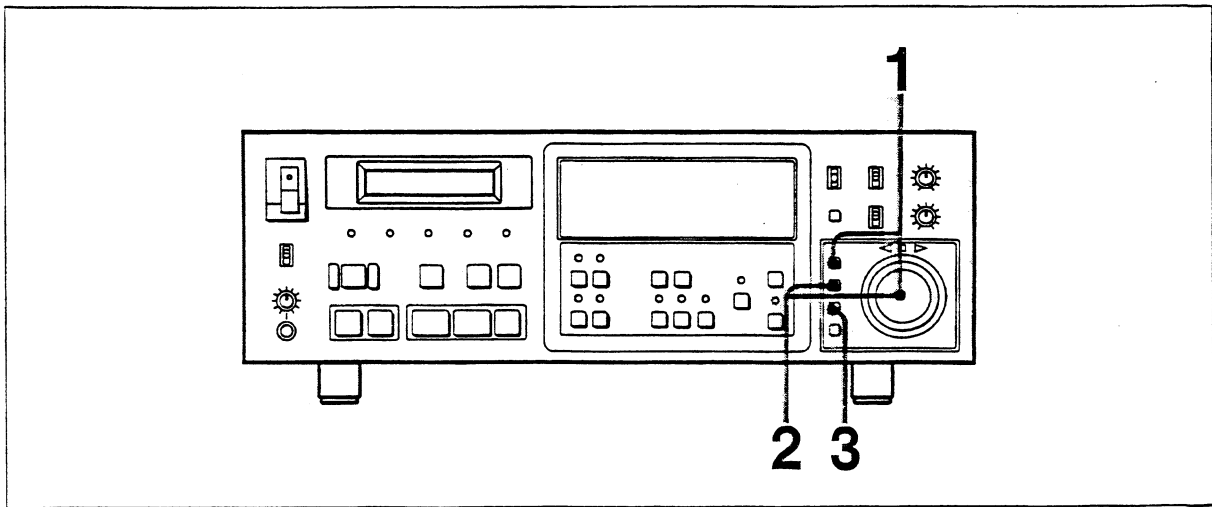
Selecting the peak level hold time of the level meters — “HoLd-t”(HOLD TIME)

Selects the peak level hold time of the level meters.
The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the display is “oPEn”(OPEN).

Factory-set position: “1_5”(1.5 seconds)



Selecting the peak level hold time of the level meters

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “HoLd-t”.
The unit enters the selection mode of the peak level hold time of the level meters.
- 2** Turn the shuttle dial while holding the DATA key down to select the peak level hold time of the level meters.
By turning the shuttle dial, the indicator flashing changes from “1_5” to “4_0”.
 “1_5”(1.5 seconds): The peak level hold time is set to 1.5 seconds.
 “4_0”(4.0 seconds): The peak level hold time is set to 4.0 seconds.
- 3** Press the SET key.
The flashing stops and the selection of the peak hold time of the level meters finishes.

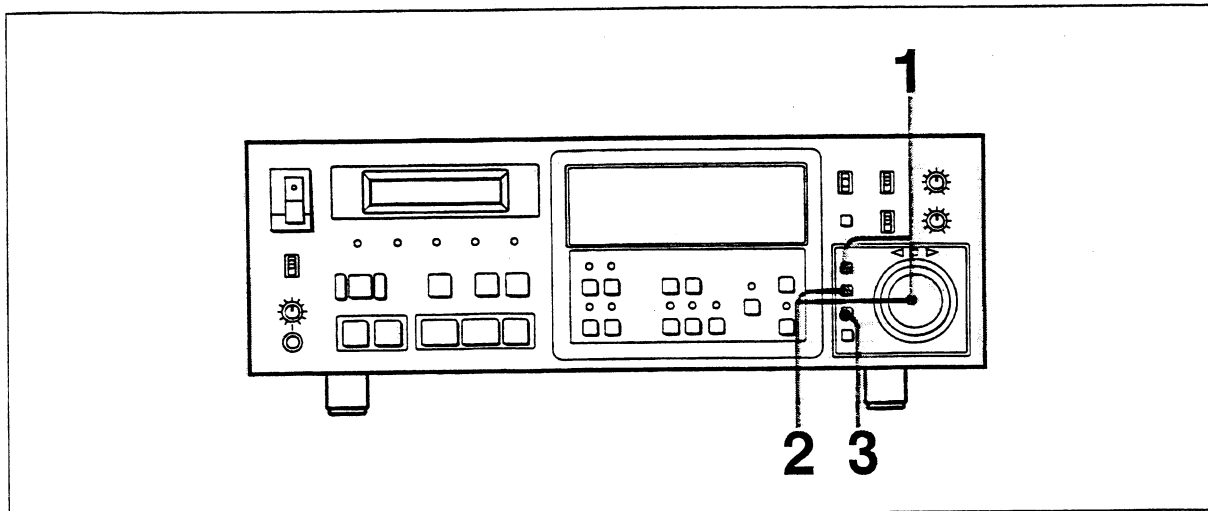
Selecting the release time for the level meters — “rLS- t”(RELEASE TIME)

Selects the release time for the level meters.
The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the display is “oPEN”(OPEN).

Factory-set position: “50”(50 milliseconds)



Selecting the release time for the level meters

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “rLS-t”.
The unit enters the selection mode of the release time for the level meters.
- 2** Turn the shuttle dial while holding the DATA key down to select the release time for the level meters.
By turning the shuttle dial, the indicator flashing changes from “50” to “100”.
 “50”(50 milliseconds): The release time is set to 50 milliseconds (0.05 seconds).
 “100”(100 milliseconds): The release time is set to 100 milliseconds (0.1 seconds).
- 3** Press the SET key.
The flashing stops and the selection of the release time for the level meters finishes.

Selecting the level detection sensitivity that lights the “OVER” segments of the level meters — “o-SEnS”(OVER LEVEL SENSITIVITY)

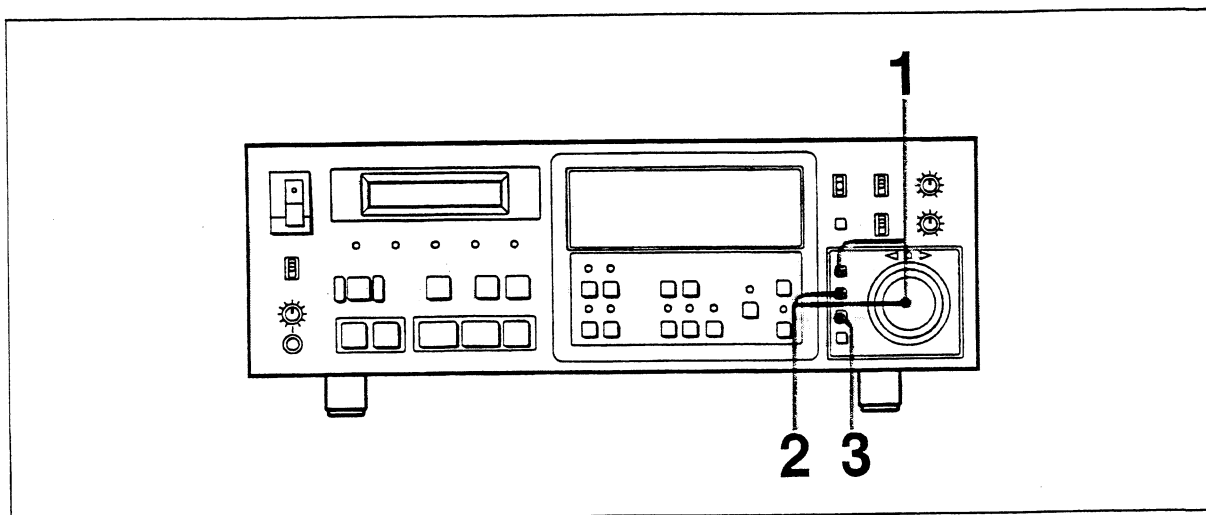
Selects the level detection sensitivity that lights the “OVER” segments of the level meters.

The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is “EnHAnCED”(ENHANCED).
- the setup menu selection for the display is “oPEn”(OPEN).

Factory-set position: “4”(4-word)



Selecting the level detection sensitivity that lights the “OVER” segments of the level meters

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “o-SEnS”.
The unit enters the selection mode of the level detection sensitivity that lights the “OVER” segments of the level meters.
- 2** Turn the shuttle dial while holding the DATA key down.
By turning the shuttle dial, the indicator flashing changes as follows:
 - “1” (1-word): The level detection sensitivity is 1 word.
 - “2” (2-word): The level detection sensitivity is 2 words.
 - “3” (3-word): The level detection sensitivity is 3 words.
 - “4” (4-word): The level detection sensitivity is 4 words.
 - “5” (5-word): The level detection sensitivity is 5 words.
 - “6” (6-word): The level detection sensitivity is 6 words.
 - “7” (7-word): The level detection sensitivity is 7 words.
- 3** Press the SET key.
The flashing stops and the selection of the level detection sensitivity that lights the “OVER” segments of the level meters finishes.

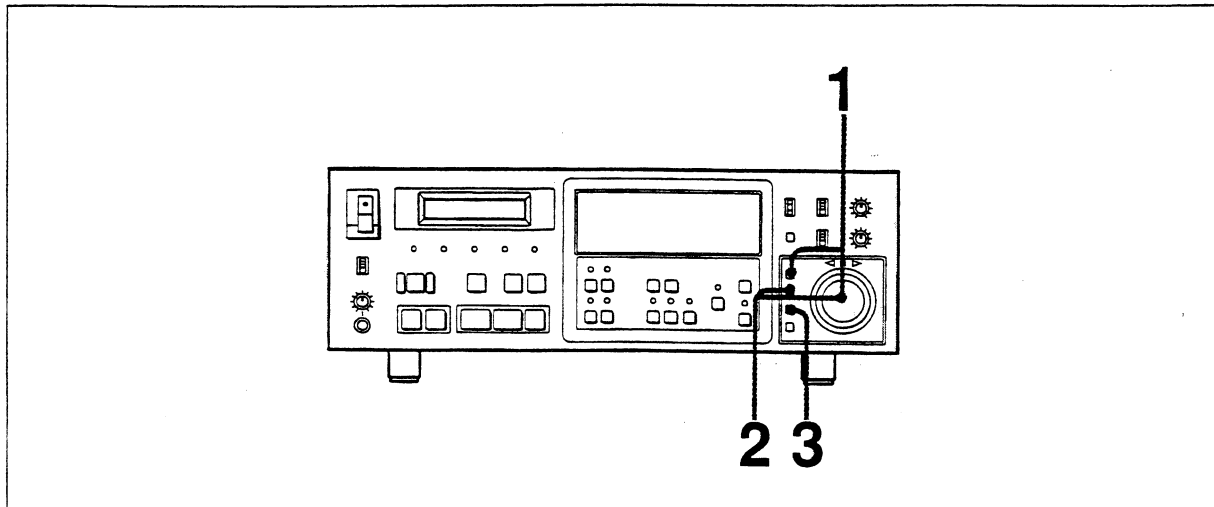
Selecting the setup menu level for the signal processor—“[SEt SP]” (SETUP MENU for SIGNAL PROCESSOR)

Selects whether to open the setup menu for the signal processor (OPEN) or not (CLOSE).

The setting is saved when you turn the power off.

This function is available when: the setup menu selection is “EnHAnCED” (ENHANCED).

Factory-set position: “cLoSE” (CLOSE)



Selecting the setup menu level for the signal processor

- 1** Turn the shuttle dial while holding the MENU key down and set the display to “[SEt SP]”.
The unit enters the setup menu selection mode for the signal processor.
- 2** Turn the shuttle dial while holding the DATA key down to select the setup menu for the signal processor.
By turning the shuttle dial, the indicator flashing changes from “cLoSE” to “oPEn”.
“cLoSE” (CLOSE): You cannot select the setup menu for the signal processor.
“oPEn” (OPEN): You can select the setup menu for the signal processor.
- 3** Press the SET key.
The flashing stops and the selection of the setup menu level for the signal processor finishes.

Selecting the cross-fade time—"croS FAdE" (CROSS-FADE TIME)

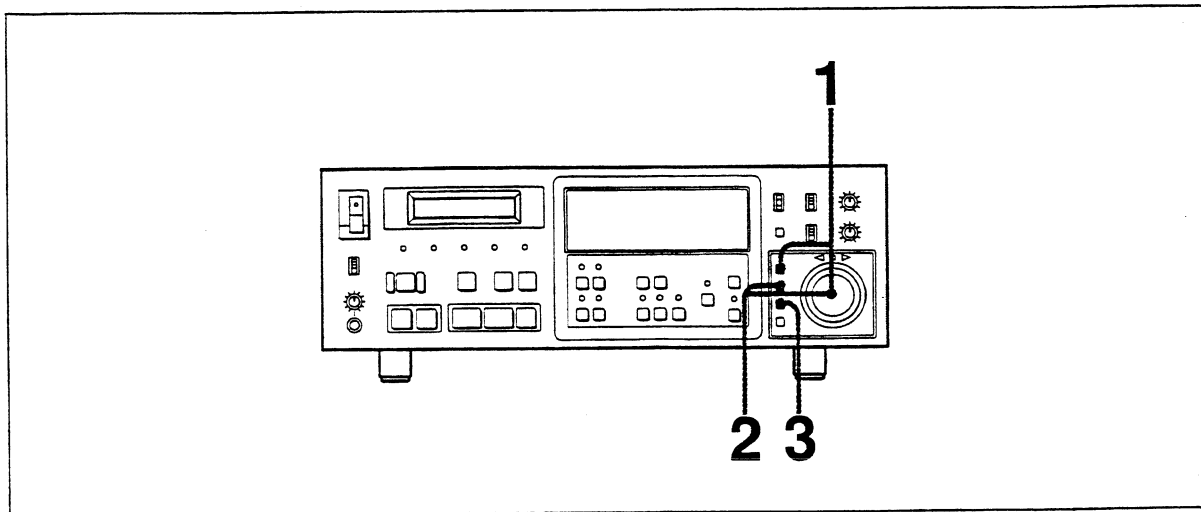
Selects the cross-fade time at punch-in/punch-out point during punch-in recording in the SYNC REC mode.

The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is "EnHAnCED" (ENHANCED).
- the setup menu selection for the signal processor is "oPEn" (OPEN).

Factory-set position: "10" (1 millisecond)



Selecting the cross-fade time

- 1** Turn the shuttle dial while holding the MENU key down and set the display to "croS FAdE".
The unit enters the selecting mode of the cross-fade time.
- 2** Turn the shuttle dial while holding the DATA key down to select the cross-fade time.
By turning the shuttle dial, the indicator flashing changes as follows.
 - "01" (0.1 milliseconds):** The cross-fade time is set to 0.1 milliseconds.
 - "10" (1 millisecond):** The cross-fade time is set to 1 millisecond.
 - "20" (2 milliseconds):** The cross-fade time is set to 2 milliseconds.
 - "50" (5 milliseconds):** The cross-fade time is set to 5 milliseconds.
 - "100" (10 milliseconds):** The cross-fade time is set to 10 milliseconds.
 - "200" (20 milliseconds):** The cross-fade time is set to 20 milliseconds.

“400” (40 milliseconds): The cross-fade time is set to 40 milliseconds.

“1000” (100 milliseconds): The cross-fade time is set to 100 milliseconds (0.1 seconds).

3 Press the SET key.

The flashing stops and the selection of the cross-fade time finishes.

For details about punch-in recording, see the section on “Punch-in recording in sync recording mode” (page 4-17) in Section 4-1-6 “Basic Recording Procedure”.

Selecting the soft mute time—"SoFt cut" (SOFT MUTE TIME)

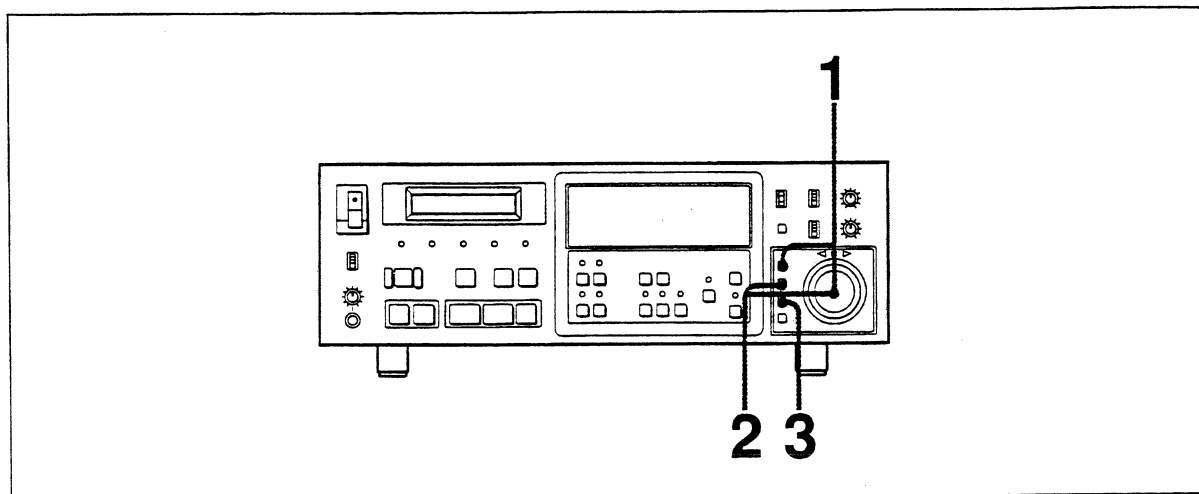
Selects the soft mute time at the point where the muting starts and releases.

The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is "EnHAnCED" (ENHANCED).
- the setup menu selection for the signal processor is "oPEn" (OPEN).

Factory-set position: "05" (0.5 milliseconds)



Selecting the soft mute time

- 1** Turn the shuttle dial while holding the MENU key down and set the display to "SoFt cut".
The unit enters the selecting mode of the soft mute time.
- 2** Turn the shuttle dial while holding the DATA key down to select the soft mute time.
By turning the shuttle dial, the indicator flashing changes as follows.
"01" (0.1 milliseconds): The soft mute time is set to 0.1 milliseconds.
"05" (0.5 milliseconds): The soft mute time is set to 0.1 milliseconds.
"10" (1 millisecond): The soft mute time is set to 1 millisecond.
"20" (2 milliseconds): The soft mute time is set to 2 milliseconds.
"50" (5 milliseconds): The soft mute time is set to 5 milliseconds.
"100" (10 milliseconds): The soft mute time is set to 10 milliseconds.
"200" (20 milliseconds): The soft mute time is set to 20 milliseconds.
"500" (50 milliseconds): The soft mute time is set to 40 milliseconds.
- 3** Press the SET key.
The flashing stops and the selection of the soft mute time finishes.

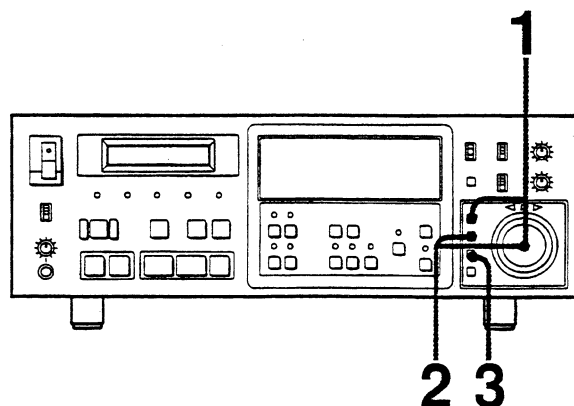
Selecting the operation mode of the low cut filter—"LcF" (LOW CUT FILTER)

Selects whether to operate the low cut filter (ON) or not (OFF)
The setting is saved when you turn the power off.

This function is available when:

- the setup menu selection is "EnHancEd" (ENHANCED).
- the setup menu selection for the signal processor is "oPEn" (OPEN).

Factory-set position: "oFF" (OFF)



Selecting the operation mode of the low cut filter

- 1** Turn the shuttle dial while holding the MENU key down and set the display to "LcF".
The unit enters the selecting mode of whether to operate the low cut filter or not.
- 2** Turn the shuttle dial while holding the DATA key down to select the operation mode.
By turning the shuttle dial, the indicator flashing changes from "oFF" to "on".
 "oFF" (OFF): The unit does not operate the low cut filter.
 "on" (ON): The unit operates the low cut filter.
- 3** Press the SET key.
The flashing stops and the selection of the operation mode of the low cut filter finishes.

Chapter 6. Application Systems with Copying Capability

This chapter will show you how to form and use systems capable of digital/analog copying (tape copying). The equipment to be connected to the PCM-7010 to make up such systems ranges from digital audio equipment and digital VTRs to analog VTRs and analog audio recorders. Though the systems introduced in this chapter represent only a small portion of many possible system configurations, they, in addition to the one shown in Chapter 1, should be regarded as basic systems for not only tape copying but many other applications.

6-1. General Information	6-1
6-2. Systems with Copying Capability and Their Applications	6-2

6-1. General Information

Most of the systems introduced in this chapter are capable of digital copying. This chapter will describe how to connect the PCM-7010 with other equipment to make up such systems and will give the precautions to be taken in using the systems.

For digital copying, the PCM-7010 requires the DABK-7011A/7011B Digital I/O option to input/output digital audio signal in the AES/EBU format.

The equipment connected to the PCM-7010 in the systems introduced in this chapter include the following:

- PCM-1630 Digital Audio Processor system
- PCM-3402 Digital Audio Recorder
- PCM-3324A or PCM-3348 Digital Audio Recorder
- Digital VTR (complying with the D-1 or D-2 format)
- BVH-2800 series 1-inch VTR
- Analog VTR
- Analog audio tape recorder

The components of the systems introduced also include some optional equipment and accessories.

Abbreviations used in this chapter

The following abbreviated expressions may be used for simplicity.

- AES/EBU digital signal or AES/EBU D-I sync signal (digital audio signal or D-I sync signal in the AES/EBU format)
- IEC958 digital signal or IEC958 D-I sync signal (digital audio signal or D-I sync signal in the IEC958 format)
- SDIF-2 digital signal (digital audio signal in the SDIF-2 format)

6-2. Systems with Copying Capability and Their Applications

This section describes systems with mainly digital copying capability, their applications and connections, relevant precautions, and problems caused by operation under improper conditions.

6-2-1. Digital Copying between PCM-7010 and PCM-1630 Digital Audio Processor System

The PCM-1630 digital audio processor system consists of the following equipment:

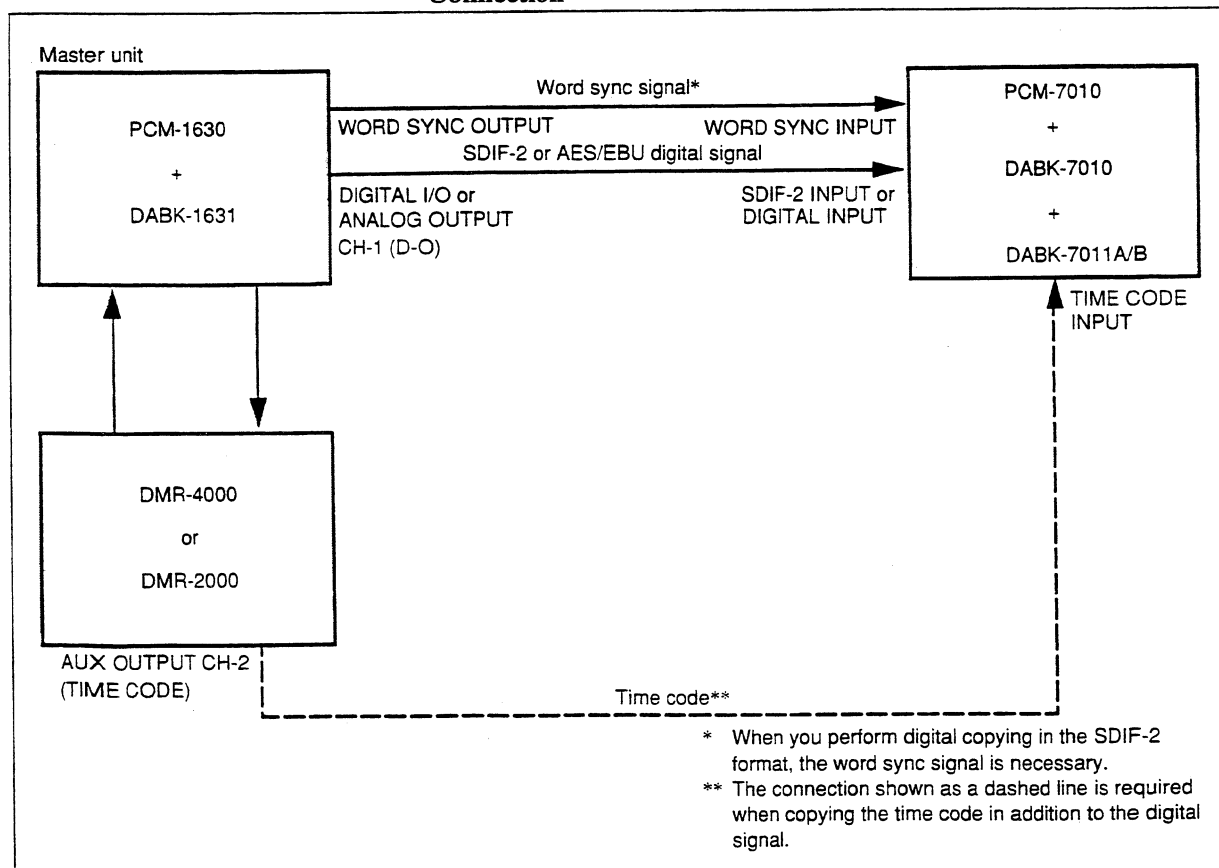
- PCM-1630 digital audio processor
- DMR-4000 or DMR-2000 digital master recorder
- DABK-1631 digital I/O option (When copying in the AES/EBU format.)

Digital copying from PCM-1630 digital audio processor system to PCM-7010

Application

Copying a master tape used for CD production to a DAT tape as a sample for use until the CD is completed.

Connection



Copying from PCM-1630 system to PCM-7010

Notes

- Make the PCM-1630 the master unit for system synchronization. When you perform digital copying in the AES/EBU format, on the PCM-7010, select the external synchronization (word) mode to use the D-I sync signal (by setting the SYNC signal selector on the front panel to EXT and the EXT SYNC selector on the connector panel to D-I). When you perform digital copying in the SDIF-2 format, select the external synchronization (word) mode to use the word sync signal (by setting the SYNC signal selector on the front panel to EXT and the EXT SYNC selector on the connector panel (DABK-7011A/7011B) to WORD).
- Tapes recorded at a sampling frequency of 44.056 kHz cannot be digitally copied in this system.
- If the PCM-7010 is made the master unit, you can digitally copy even a tape recorded at a sampling frequency of 44.056 kHz. In that case, however, copying will be carried out at a sampling frequency of 44.1 kHz, raising the pitch by about 0.1 percent. (The ALARM indicator does not light.)
- On the PCM-7010, select the SMPTE (30 Hz) time code and set the "rEc tc (RECORD TIME CODE)" in the setup menu to "inPut (INPUT)".
- For the PCM-1630, use a tape for SMPTE (30 Hz) time code, non-drop frame mode, and a sampling frequency of 44.1 kHz.
- The sampling frequency of DAT tapes produced by copying in this system is 44.1 kHz.
- PQ cue code on a master tape cannot be copied.

Problems caused when the above conditions are not met

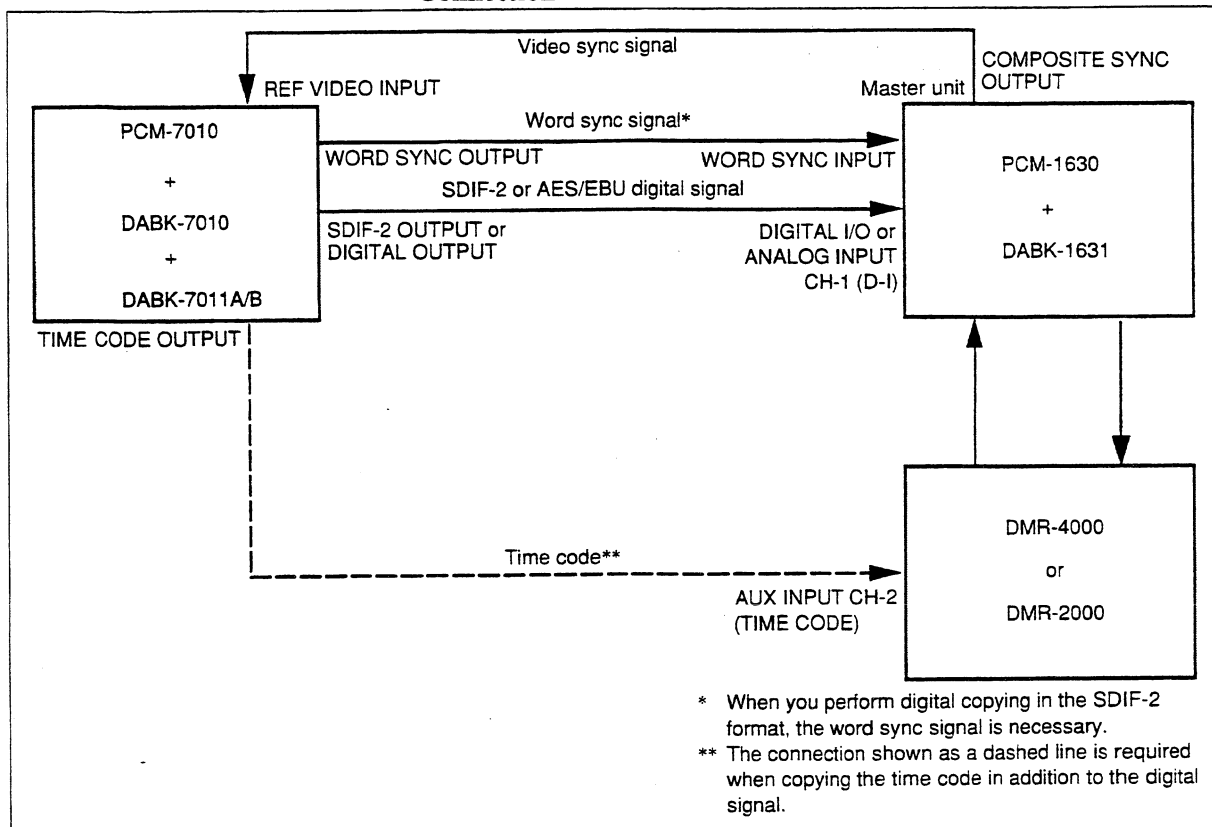
- If the time code input to the PCM-7010 does not match the corresponding setting on the PCM-7010, the PCM-7010 will be unable to carry out recording correctly.
- If the input sampling frequency does not match the corresponding setting on the PCM-7010, the PCM-7010 cannot copy the input signal. (You cannot monitor sound either.)
- When you perform digital copying in the SDIF-2 format, the AES/EBU D-I sync signal can be replaced by the word sync signal. In this case, set the EXT SYNC selector on the connector panel to D-I.

Digital copying from PCM-7010 to PCM-1610 system

Application

Producing a CD using a tape recorded on a DAT recorder.

Connection



Copying from PCM-7010 to PCM-1630 system

Notes

- Make the PCM-1630 system the master unit for system synchronization. On the PCM-7010, select the external synchronization (video) mode by setting the SYNC signal selector to VIDEO, and set the SAMPLING FREQ selector to 44.1kHz on its front panel.
- To also copy the time code from the tape in the PCM-7010:
 - 1) On the PCM-7010, select the SMPTE (30 Hz) time code, non-drop frame mode (NDF).
 - 2) On the DMR-4000 or DMR-2000, select the non-drop frame mode.
 - 3) On the PCM-7010, select SYNC PB "ENABLE" mode (i.e., the factory setting for locking the off-tape time code and the input video sync signal in phase).
 - 4) Start playback on the PCM-7010 before starting recording on the DMR-4000 or DMR-2000.

- When you perform digital copying in the SDIF-2 format without copying the time code, the word sync signal is necessary.

Problems caused when the above conditions are not met

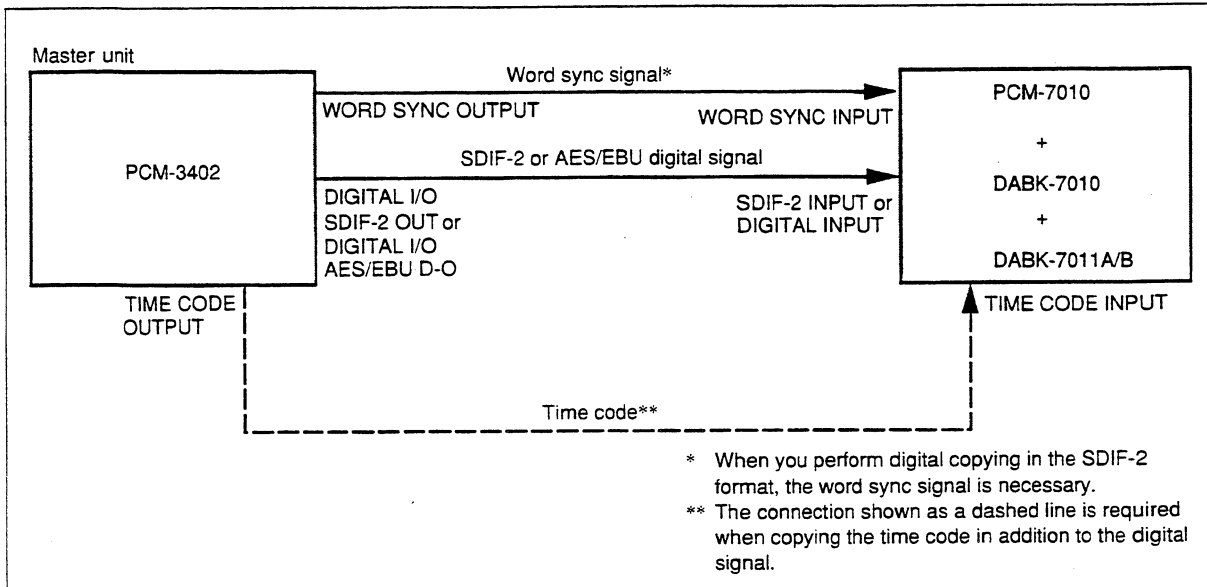
- If you use a DAT tape recorded at a sampling frequency other than 44.1 kHz, the signals copied on the PCM-1630 will be muted.
- The time code will not record correctly unless you have selected SYNC PB "ENABLE" on the PCM-7010.
- Changing the playback speed on the PCM-7010 will result in muting on the PCM-1630. (If it is necessary to change the playback speed while copying, you should do analog copying.)

6-2-2. Digital Copying between PCM-7010 and PCM-3402 Digital Audio Recorder

Digital copying from PCM-3402 digital audio recorder to PCM-7010

Application
Simple copying

Connection



Copying from PCM-3402 to PCM-7010

Notes

- Make the PCM-3402 the master unit for system synchronization. When you perform digital copying in the AES/EBU format, on the PCM-7010, select the external synchronization (word) mode to use the D-I sync signal (by setting the SYNC signal selector on the front panel to EXT and the EXT SYNC selector on the connector panel to D-I). When you perform digital copying in the SDIF-2 format, select the external synchronization (word) mode to use the word sync signal (by setting the SYNC signal selector on the front panel to EXT and the EXT SYNC selector on the connector panel (DABK-7011A/7011B) to WORD).
- On the PCM-7010, select the same sampling frequency (44.1 kHz or 48 kHz) as selected on the PCM-3402.
- To also copy the time code from the tape in the PCM-3402, make the same time code setting on the PCM-7010 as on the PCM-3402. Furthermore, make sure that on the PCM-3402 the time code is synchronized with the sampling frequency.
- Do not change the playback speed of the PCM-3402.

- When you perform digital copying in the SDIF-2 format, the AES/EBU D-I sync signal can be replaced by the word sync signal. In this case, set the EXT SYNC selector on the connector panel to D-I.

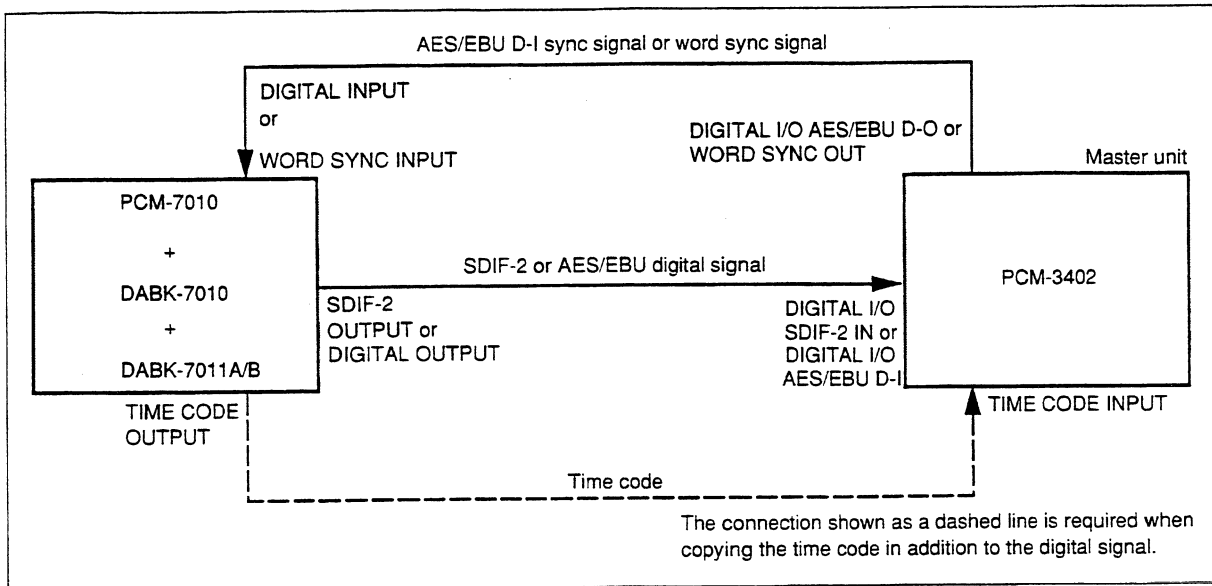
Problems caused when the above conditions are not met

- The PCM-7010 will not be able to copy if the input sampling frequency does not match the sampling frequency set on it. (Changing the playback speed of the PCM-3402 will also make copying difficult.)
- If the input time code does not match the corresponding setting on the PCM-7010, the unit will not record correctly.

Digital copying from PCM-7010 to PCM-3402

Application
Simple copying

Connection



Copying from PCM-7010 to PCM-3402

Notes

- Make the PCM-3402 the master unit for system synchronization. On the PCM-7010, select the external synchronization (word) mode to use the D-I sync signal or word sync signal (by setting the SYNC signal selector on the front panel to EXT and the EXT SYNC selector on the connector panel to D-I or WORD).
- On the PCM-3402, set the sampling frequency to 44.1 kHz or 48 kHz either of which is selectable on the PCM-7010.
- Do not change the playback speed of the PCM-7010.

Problems caused when the above conditions are not met

- The PCM-3402 will be unable to copy if the input sampling frequency does not match the sampling frequency set on it. (Changing the playback speed of the PCM-7010 will also make copying difficult.)
- If the time code input to the PCM-3402 does not match the corresponding setting on it, the PCM-3402 will not be able to record correctly.

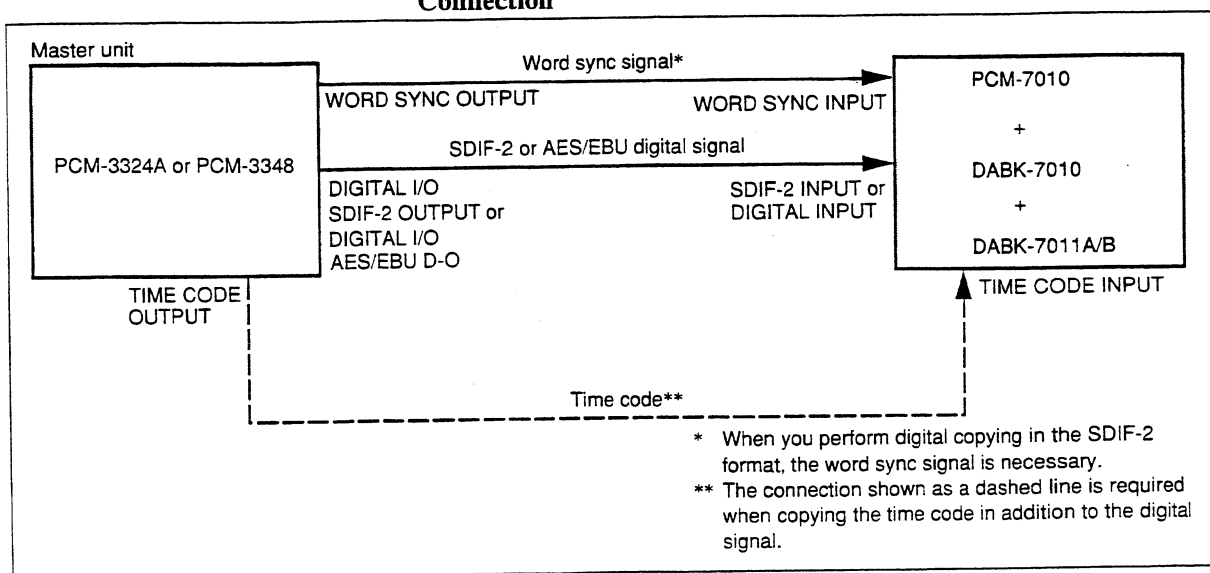
6-2-3. Digital Copying between PCM-7010 and PCM-3324A or PCM-3348 Digital Audio Recorder

Digital copying from PCM-3324A or PCM-3348 to PCM-7010

Applications

- Copying a tape carrying a package program (including lay-back copying)
- Simple copying
- Time-shift copying of a track

Connection



Copying from PCM-3324A or PCM-3348 to PCM-7010

Package program

A complete program recorded on two channels.

Lay-back copying

Using audio editing to copy the signal recorded on a channel of a multi-track audio tape onto the audio track of a master tape.

Time-shift copying

Copying the signal recorded on a track of a tape onto a different location or another channel on the same tape.

Notes

- Make the PCM-3324A or PCM-3348 the master unit for system synchronization. When you perform digital copying in the AES/EBU format, on the PCM-7010, select the external synchronization (word) mode to use the D-I sync signal (by setting the SYNC signal selector on the front panel to EXT and the EXT SYNC selector on the connector panel to D-I). When you perform digital copying in the SDIF-2 format, select the external synchronization (word) mode to use the word sync signal (by setting the SYNC signal selector on the front panel to EXT and the EXT SYNC selector on the connector panel (DABK-7011A/7011B) to WORD).
- On the PCM-7010, set the same sampling frequency as set on the PCM-3324A or PCM-3348 (44.1 kHz or 48 kHz).
- To also copy the time code from the tape in the PCM-3324A or PCM-3348:
 - 1) Make sure that the time code recorded on the PCM-3324A or PCM-3348 is synchronized with the sampling frequency.
 - 2) On the PCM-7010, select the same time code as that recorded on the tape in the PCM-3324A or PCM-3348.
- Do not change the playback speed of the PCM-3324A or PCM-3348.

Problems caused when the above conditions are not met

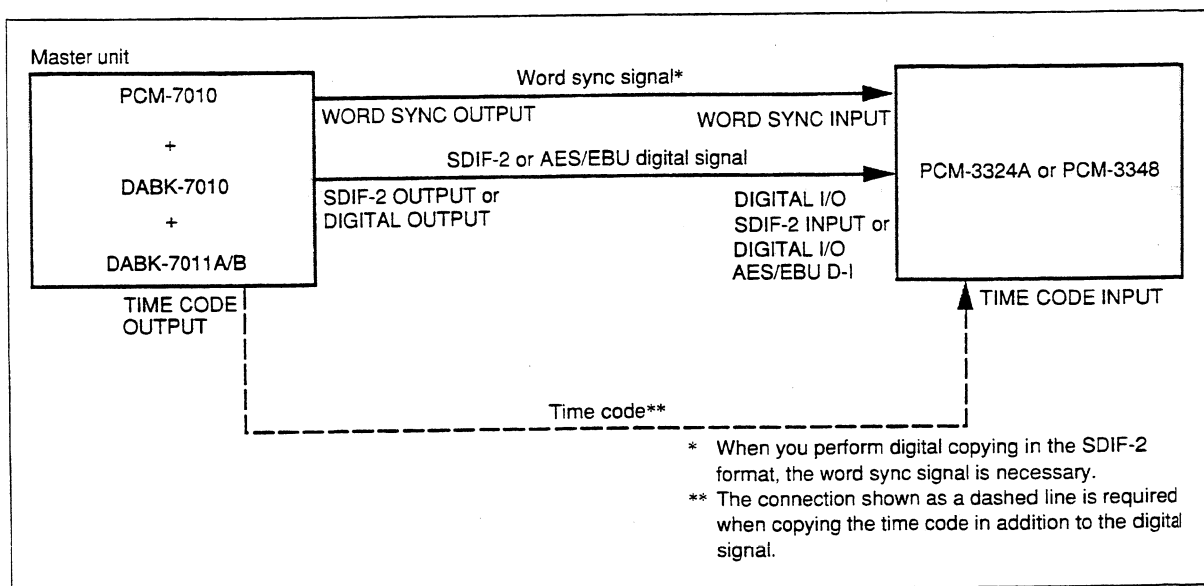
- The PCM-7010 will not copy if the input sampling frequency does not match the sampling frequency set on it. (Changing the playback speed of the PCM-3324A or PCM-3348 will also make copying difficult.)
- If the time code input to the PCM-7010 does not match the corresponding setting on it, the PCM-7010 will not record correctly.

Digital copying from PCM-7010 to PCM-3324A or PCM-3348

Applications

- Lay-down copying
- Simple copying
- Time-shift copying

Connection



Copying from PCM-7010 to PCM-3324A or PCM-3348

Notes

- Make the PCM-7010 the master unit for system synchronization. Set the SYNC signal selector on the front panel to INT.
- On the PCM-7010, set the SAMPLING FREQ selector on the front panel to 44.1kHz or 48kHz.
- Do not change the playback speed of the PCM-7010.

Problems caused when the above conditions are not met

- The PCM-3324A or PCM-3348 will not be able to copy if the input sampling frequency does not match the sampling frequency set on it. (Changing the playback speed of the PCM-7010 will also make copying difficult.)
- If the time code input to the PCM-3324A or PCM-3348 does not match the corresponding setting on it, neither the PCM-3324A nor the PCM-3348 will be able to record correctly.

Lay-down copying

Copying the audio signal supplied by a VTR onto a multi-track audio tape.

6-2-4. Digital Copying between PCM-7010 and D-1 or D-2 Format Digital VTR

The “digital VTR complying with D-1 format” mentioned in this chapter refers to the following VTR:

- DVR-1000 component digital VTR
- DVPC-1000 digital signal processor

The “digital VTR complying with D-2 format” mentioned in this chapter refers to the following VTR:

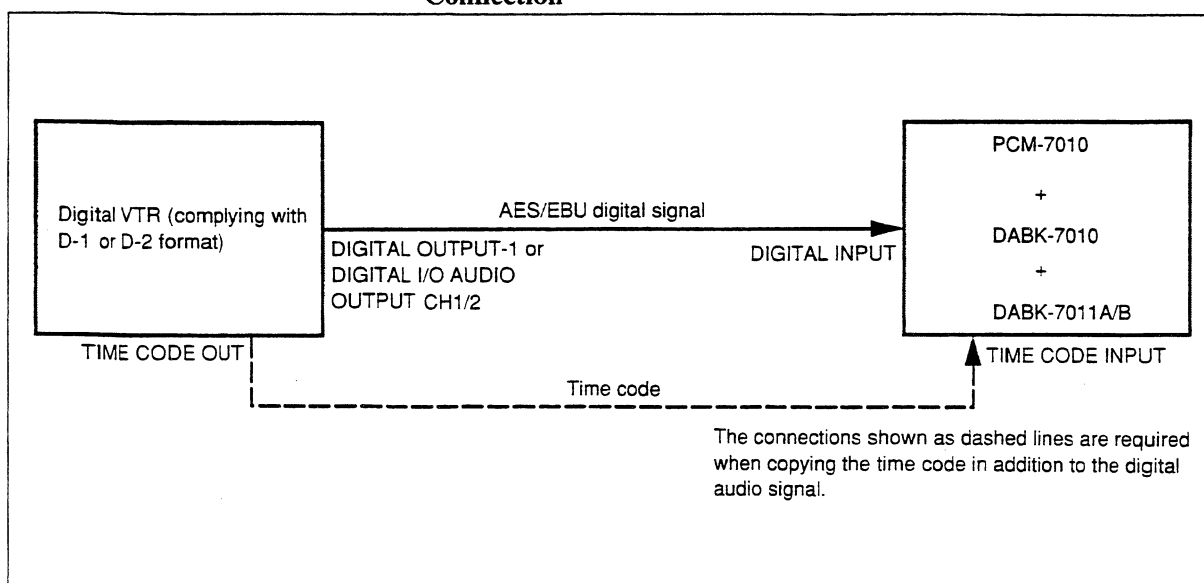
- DVR-10 or DVR-18 composite digital VTR

Digital copying from D-1/D-2 format digital VTR to PCM-7010

Application

Audio track copying (producing a copy (for tape transportation) of the originally recorded track for use in lay-down copying)

Connection



Copying from digital VTR to PCM-7010

Notes

- Make the digital VTR (complying with D-1/D-2 format) the master unit for system synchronization.
- On the PCM-7010, set the SYNC signal selector to EXT and the SAMPLING FREQ selector to 48 kHz on the front panel, and the EXT SYNC selector to D-I on the connector panel.
- Make the time code setting on the PCM-7010 consistent with the time code recorded on the tape complying with D-1/D-2 format.

Problem caused when the above conditions are not met

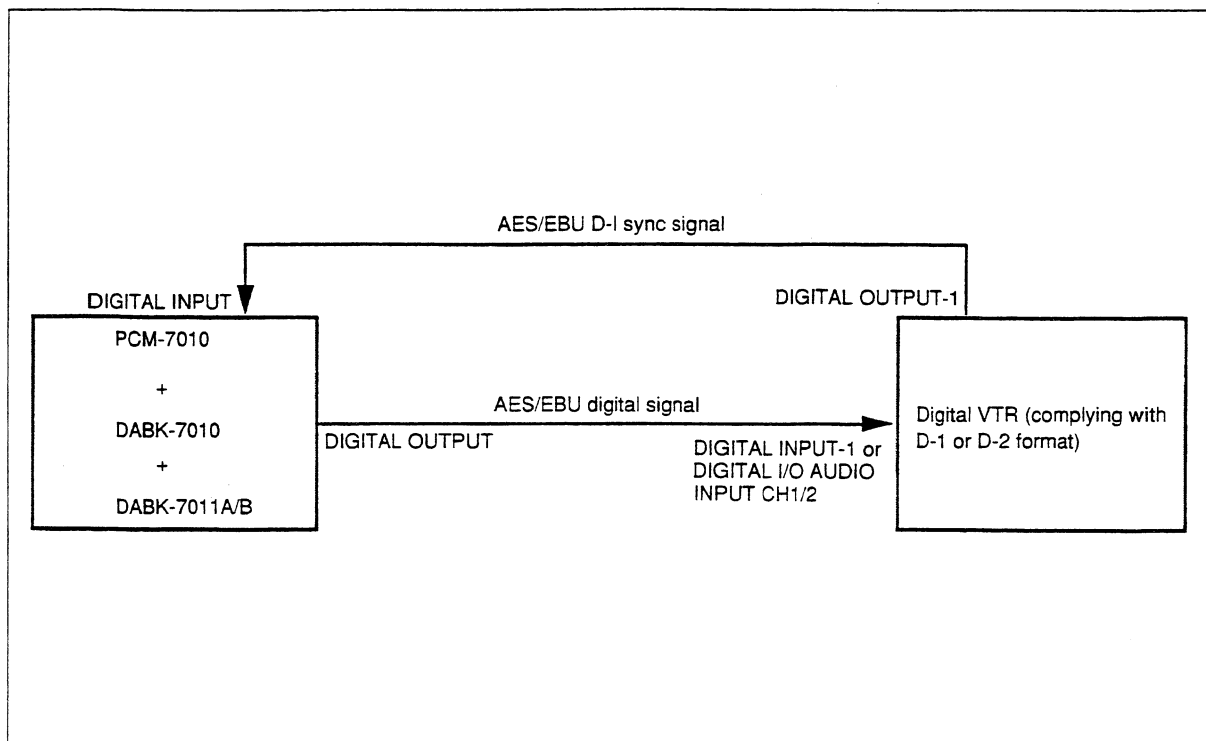
If the input signal sampling frequency does not match the sampling frequency set on the PCM-7010, the PCM-7010 will not record correctly.

Digital copying from PCM-7010 to D-1/D-2 format digital VTR

Application

Copying the original audio signal recorded on a DAT tape onto the audio track of a video tape

Connection



Copying from PCM-7010 to digital VTR

Notes

- Make the digital VTR (complying with D-1/D-2 format) the master unit for system synchronization.
- On the PCM-7010, make the following settings:
 - On the connector panel, connect the AES/EBU D-I sync signal to the DIGITAL INPUT connector and set the EXT SYNC selector to D-I.
 - On the front panel, set the SYNC signal selector to EXT and the SAMPLING FREQ selector to 48 kHz.
- Copying in chase synchronization mode (lay-back copying) is impossible.

Problem caused when the above conditions are not met

If a tape recorded at a sampling frequency of other than 48 kHz is played back on the PCM-7010, the digital VTR will not be locked by the D-I sync signal so that the digital VTR will not record correctly.

6-2-5. Digital Copying between PCM-7010 and BVH-2800 1-inch VTR System

The BVH-2800 1-inch VTR system consists of the following equipment:

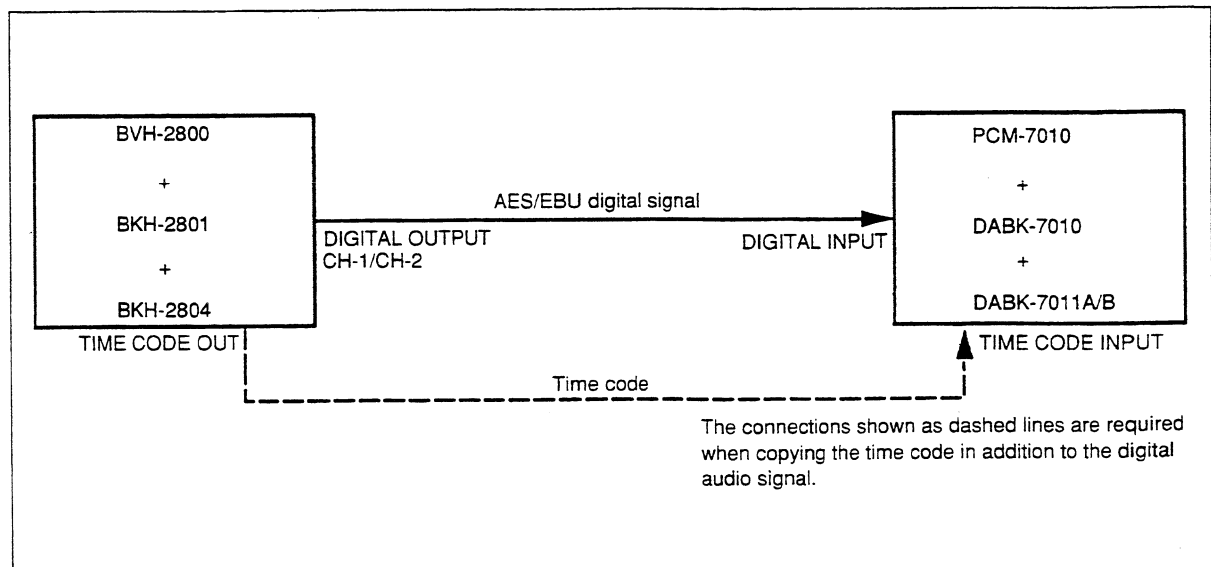
- BVH-2800 1-inch VTR with digital audio
- BKH-2801 PCM audio processor for BVH-2800
- BKH-2804 digital audio I/O interface for BVH-2800 (optional accessory for BKH-2801)

Digital copying from BVH-2800 1-inch VTR system to PCM-7010

Application

Audio track copying (producing a copy (for tape transportation) of the originally recorded track for use in lay-down copying)

Connection



Copying from BVH-2800 system to PCM-7010

Notes

- Make the BVH-2800 system the master unit for system synchronization.
- On the PCM-7010, make the following settings:
 - On the front panel, set the SYNC signal selector to EXT and the SAMPLING FREQ selector to the sampling frequency given by the tape in the BVH-2800.
 - On the connector panel, set the EXT SYNC selector to D-I.
- Make the time code setting on the PCM-7010 consistent with the time code recorded on the tape in the BVH-2800.

Problem caused when the above conditions are not met

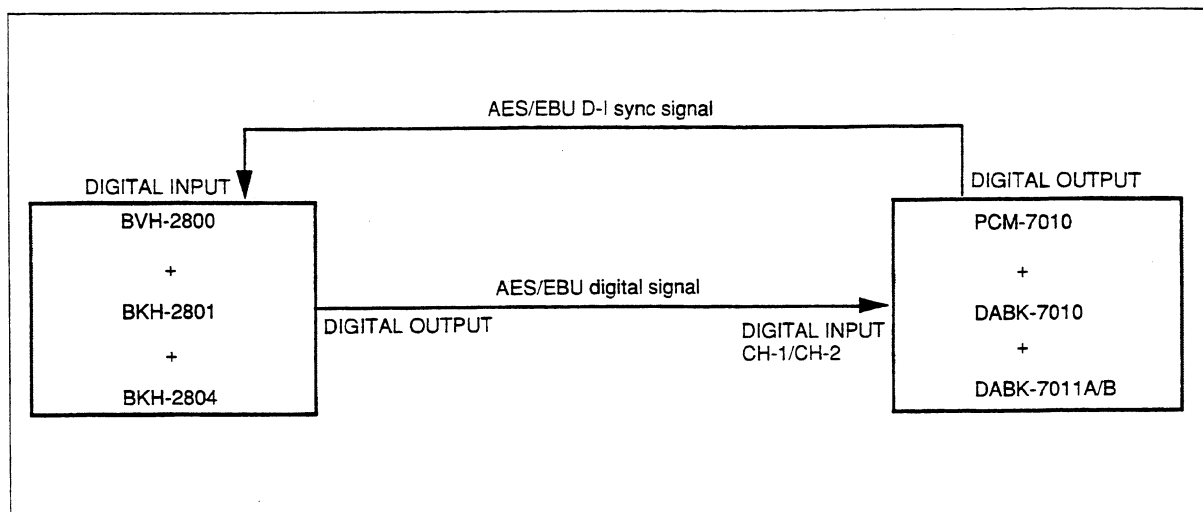
If the input sampling frequency signal does not match the sampling frequency set on the PCM-7010, the PCM-7010 will not be able to record correctly.

Digital copying from PCM-7010 to BVH-2800 1-inch VTR system

Application

Copying the original audio signal recorded on a DAT tape onto the audio track of a video tape

Connection



Copying from PCM-7010 to BVH-2800 system

Notes

- Make the BVH-2800 system the master unit for system synchronization.
- On the PCM-7010, make the following settings:
 - On the connector panel, connect the AES/EBU D-I sync signal to the DIGITAL INPUT connector and set the EXT SYNC selector to D-I.
 - On the front panel, set the SYNC signal selector to EXT and the SAMPLING FREQ selector to the sampling frequency given by the tape in the BVH-2800.
- Copying in chase synchronization mode (lay-back copying) is impossible.

Problem caused when the above conditions are not met

If the video sync signal frequency setting is incorrect, playback will be muted.

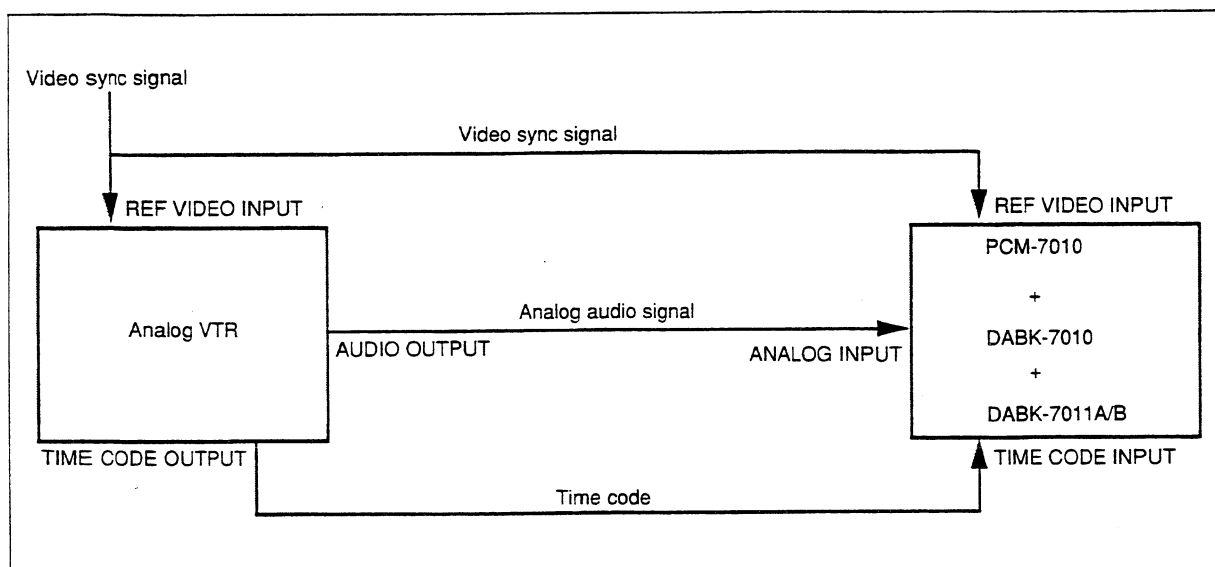
6-2-6. Tape Copying between PCM-7010 and Analog VTR

Copying from analog VTR to PCM-7010

Application

Audio track copying (producing a copy (for tape transportation) of the originally recorded track for use in lay-down copying)

Connection



Copying from analog VTR to PCM-7010

Notes

- Make the VTR the master unit for system synchronization.
- On the PCM-7010, make the following settings:
 - 1) On the connector panel, connect the video sync signal to the REF VIDEO INPUT connector. On the front panel, set the SYNC signal selector to VIDEO.
 - 2) On the front panel, set the SAMPLING-FREQ selector to 48kHz or 44.1kHz.
- Make the time code setting on the PCM-7010 consistent with the time code recorded on the tape in the VTR.

Problem caused when the above conditions are not met

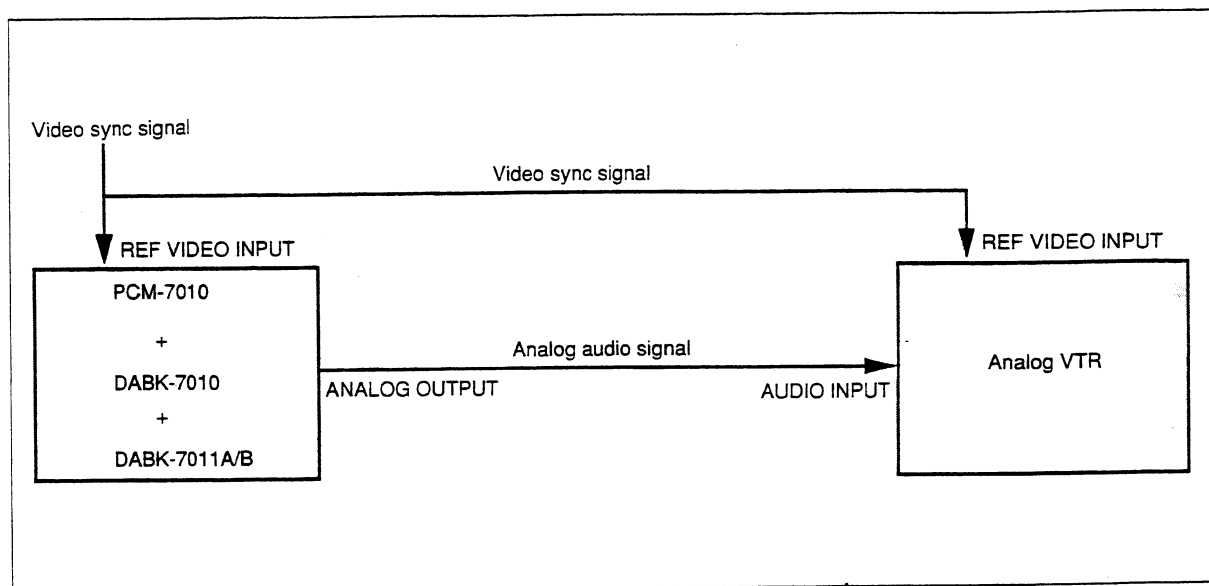
The time code will not record correctly.

Copying from PCM-7010 to analog VTR

Application

Copying the original audio signal recorded on a DAT tape onto the audio track of a video tape

Connection



Copying from PCM-7010 to analog VTR

Notes

- Make the VTR the master unit for system synchronization.
- On the PCM-7010, make the following settings:
 - 1) On the connector panel, connect the video sync signal to the REF VIDEO INPUT connector. On the front panel, set the SYNC signal selector to VIDEO.
 - 2) Set the SAMPLING FREQ selector to 48 kHz or 44.1 kHz on the front panel.
- Copying in chase synchronization mode (lay-back copying) is impossible.

Problem caused when the above conditions are not met

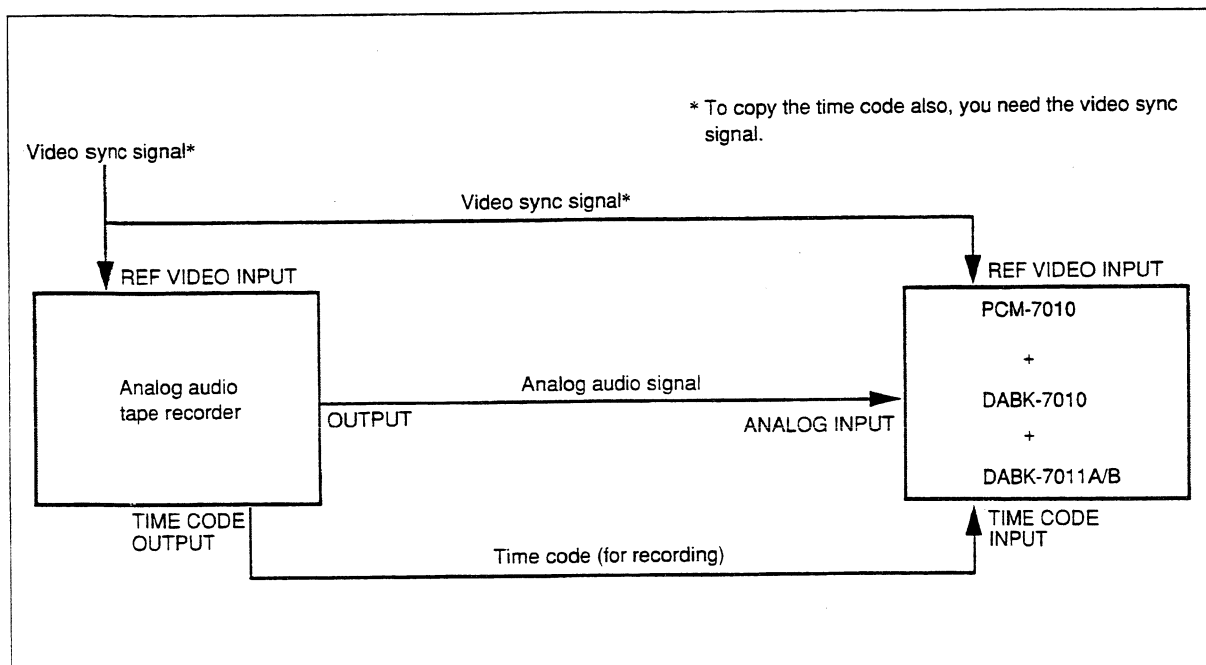
The length of the playback tape and the copied tape will differ unless the PCM-7010 and the analog VTR are frequency- synchronized.

6-2-7. Tape Copying between PCM-7010 and Analog Audio Tape Recorder

Copying from analog audio tape recorder to PCM-7010

Application
Simple copying

Connection



Copying from analog audio tape recorder to PCM-7010

Notes

To copy the time code in addition to the audio signal:

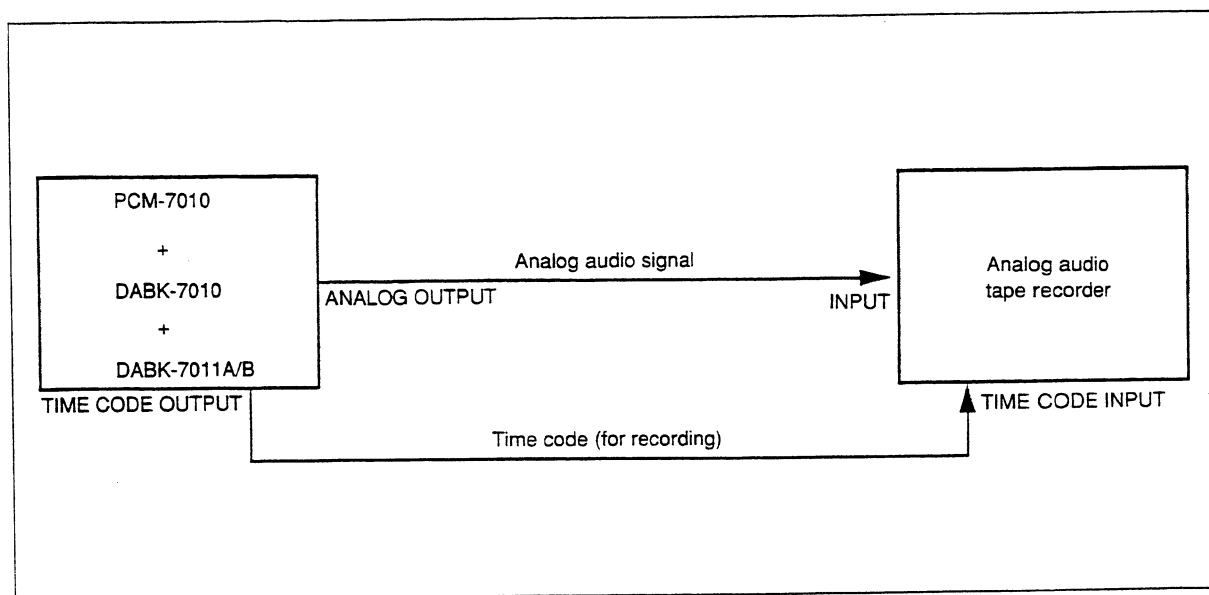
- 1) The time code to be copied must be frequency-synchronized with the video sync signal.
- 2) Ensure that the playback time code for the analog audio tape recorder is in phase with the input video sync signal.
- 3) Make the time code setting on the PCM-7010 consistent with the time code recorded on the tape in the analog audio tape recorder.

Problem caused when the above conditions are not met
The time code will not be recorded correctly.

Copying from PCM-7010 to analog audio tape recorder

Application
Simple copying

Connection



Copying from PCM-7010 to analog audio tape recorder

Chapter 7. Warning Indicators and Error Messages

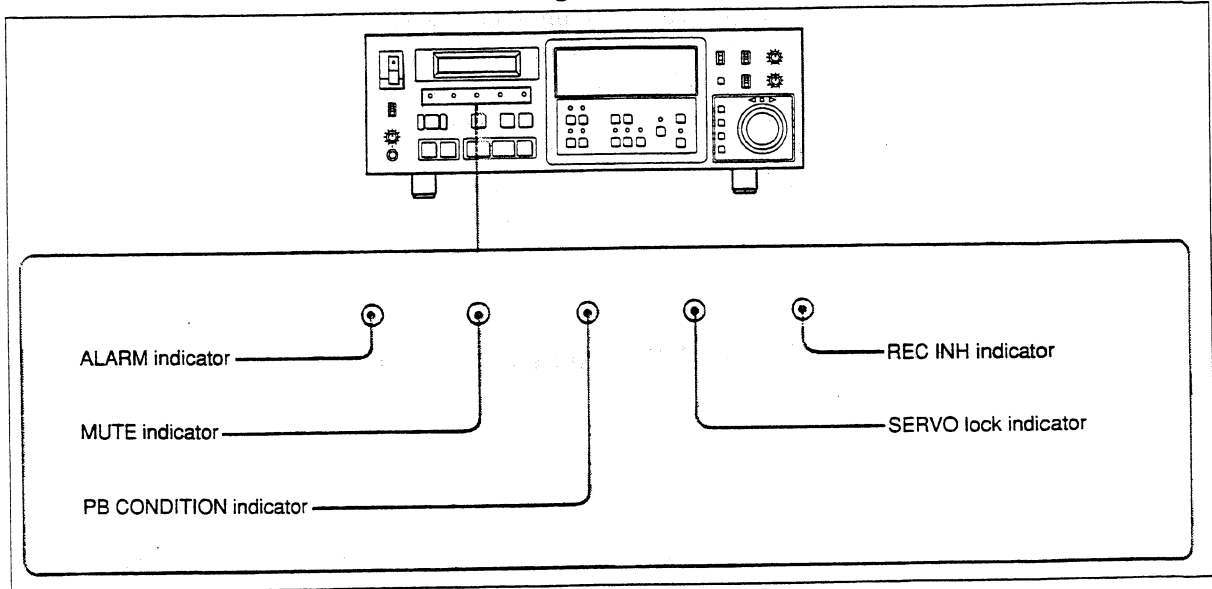
This chapter describes the warning indicators and error messages displayed. The warning indicators mainly indicate tape transport abnormalities. Error messages appearing on the display directly or through the dial menu indicate internal abnormalities and their gravity. In the event of some operational failure, proceed as directed in this chapter.

7-1. Warning Indicators	7-1
7-2. Error Messages	7-4
7-3. Flashing Indicator Warnings	7-10
7-4. Operating Error Warnings	7-12

7-1. Warning Indicators

7-1-1. Warning Indicator Lamps

The following five warning indicators are mounted on the front panel.



Warning indicator lamps

The above indicators except the SERVO lock indicator and the REC INH indicator come on in the event of an abnormality. The SERVO lock indicator illuminates under normal conditions. Therefore, if the SERVO lock indicator goes out when it should be lit, it indicates abnormality.

The functions of each warning indicators are described below.

7-1-2. When the ALARM Indicator Comes On

When any abnormality occurs in the unit, this indicator lights and the display shows the associated error code number.

For error code numbers, see Section 7-2 "Error Messages" (page 7-4).

7-1-3. When the MUTE Indicator Comes On

If proper playback cannot be accomplished due to damaged tape, abnormal tape recordings, or head drum or other transport system failure, the unit is automatically muted (silenced) and the MUTE indicator illuminates. When a troubled portion of the tape passes through the head section and the transport system is restored to normal, the unit resumes normal playback operations. Therefore, even if the MUTE indicator lights, it does not necessarily indicate machine failure. However, if the indicator comes on frequently, you should check the tape and the machine.

7-1-4. When the PB CONDITION Indicator Comes On

When the tape playback results are poor, in other words, the error rate is high, and repetitive interpolation or muting is about to begin, the PB CONDITION indicator comes on. If the indicator lights frequently, you should check the tape and the machine. If an incorrect tape is used, copy its contents to new tape without delay. Note that the "Pb cond" (PB CONDITION) setup in the setup menu can be changed to illuminate the PB CONDITION indicator in either the CORRECTION or INTERPOLATION state. If CORRECTION is selected, the PB CONDITION indicator will come on more frequently.

For further details, see the Section on "Pb cond (PB CONDITION)" (page 5-80) in Section 5-3-2 "Setup Menu".

CORRECTION

The system restores any error found in the playback signal to normal using the error-correcting code.

INTERPOLATION

If the error rate exceeds the error correction range, the erroneous data are replaced by the average of the data immediately before and after the erroneous data so as to make the errors inaudible.

7-1-5. When the SERVO Lock Indicator Goes Off

When the head drum revolving speed builds up as specified and the capstan reaches the steady-state rotating speed (this state is referred to as being servo-locked), the SERVO lock indicator comes on. If the head drum or capstan rotation becomes unsteady, the indicator goes off and audio output instability or muting may result.

7-1-6. When the REC INH Indicator Comes On

This indicator lights when a write-protected cassette tape (cassette tape with its tab hole open) or software tape is inserted into the unit. While the indicator is lit, the unit is inhibited from recording. To record onto a write-protected tape, close its write-protect tab hole.

For the write-enabling procedure, see Section 3-5-2 "Preventing Accidental Erasure" (page 3-21).

7-2. Error Messages

In the event of error, the self-diagnostic function incorporated in the PCM-7010 works to display the error information. Errors may occur due to mechanical failure, use of defective tape, or the execution of an incorrect operating procedure. However, the following subsections are dedicated to errors resulting from abnormalities of mechanism or tape.

Errors are classified into various levels. The PCM-7010 automatically applies the best remedies in accordance with the levels of specific errors. First the error levels are described below and then the individual error descriptions follow.

7-2-1. Error Levels

Errors are classified into levels 1 through 5 according to the gravity.

Note

If the ALARM indicator comes on, inspection or repairs are necessary. Note the displayed error code and contact a qualified Sony service technician.

Error level 1

There is something wrong with the tape. The MUTE indicator lights up. You may be unable to play back that tape, but you can use the unit as usual. No error code automatically appears on the display. To obtain the error description, call up the "cAution" screen from the dial menu and note the displayed error code.

For the "cAution" screen call-up procedure, see the section on "cAution (CAUTION)" (page 5-35) in Section 5-3-1 "Display Menu".

Remedy

It is necessary to check the tape and the machine that produced the tape.

Error level 2

A minor error or operating error has occurred. The word "cAution" and the error code appear on the display, but you can continue to use the unit.

Remedy

Check for improper use of the unit. If errors at this level occur frequently, contact a qualified Sony service technician.

Error level 3

The unit has been left in the adjustment mode. The ALARM indicator flashes on and off. No error code automatically appears on the display. To obtain the error description, call up the "cAution" screen from the dial menu and note the displayed error code. In this state, the unit cannot be used normally.

Remedy

Contact a qualified Sony service technician.

Error level 4

A serious error has occurred, affecting part of the unit. The ALARM indicator comes on. In the event of this type of error, however, a limited number of functions can be exercised. No error code automatically appears on the display. To obtain the error description, call up the "Error" screen from the dial menu.

For the "Error" screen call-up procedure, see the section on "Error (ERROR)" (page 5-34) in Section 5-3-1 "Display Menu".

Remedy

Contact a qualified Sony service technician.

Error level 5

A serious error has occurred in the unit. The ALARM indicator comes on, and the display reads "ERROR" and shows the error code. In this state, all the keys of the unit are inoperative. If this condition occurs, turn the power off and then turn it back on to check whether the ALARM indicator goes off. If the ALARM indicator goes off, the unit is operative again.

Remedy

The unit needs to be inspected. Contact a qualified Sony service technician.

7-2-2. Error Codes

The numbers appearing on the display together with the “Error” or “cAution” indication in the event of error occurrence are referred to as error codes. The error codes outline the errors detected so that you can tell how and what parts of the unit are affected.

The meanings and error levels of the error codes are indicated below.

When the display reads “Error 1-**”

An error has occurred on the signal processing circuit board (SP-1 board).

Error Code 1-**

Error code	Meaning	Error level
1-01	An error around the main CPU has occurred.	5
1-02	An error between the main CPU and MECH MPU has occurred.	5
1-03	An error between the main CPU and DSP/ZSP MPU has occurred.	5
1-04	An error between the main CPU and TCP MPU has occurred.	5
1-08	An error between the main CPU and REMOTE MPU has occurred.	5
1-09	Backup data has failed in the main CPU.	5
1-20	An error in the leading head processor has occurred.	5
1-30	An error in the trailing head processor has occurred.	5
1-40	An error around the main SP LSI has occurred.	5

When the display reads "Error 2-"**

An error has occurred on the servo circuit board (SRVO board).

Error Code 2-**

Error code	Meaning	Error level
2-02	The data bus is in error.	5
2-05	The data stored in the servo (SV) backup memory has been destroyed.	4
2-10	A communication interrupt error has occurred.	5
2-21	Cassette compartment has malfunctioned.	5
2-23	Cassette loading motor has malfunctioned.	5
2-31	The head drum motor does not rotate.	5
2-32	The head drum revolving speed has increased or decreased.	5
2-40	The capstan motor does not rotate.	5
2-50	The take-up reel motor does not rotate.	5
2-51	The supply reel motor does not rotate.	5
2-60	The tape transport error has occurred.	5

When the display reads "Error 4-" (when the optional DABK-7011A/7011B is installed)**

An error has occurred on the digital I/O circuit board (DIO board).

Error Code 4-**

Error code	Meaning	Error level
4-02	The data bus is in error.	4

When the display reads "Error 5-" (when the optional DABK-7010 is installed)**

An error has occurred on the time code reader/generator circuit board (TC-1 and TC-2 boards).

Error Code 5-**

Error code	Meaning	Error level
5-02	The data bus is in error.	4

When the display reads “Error 6-” (when the optional DABK-7012 is installed)**

An error has occurred on the memory start circuit board (MEM board).

Error Code 6-**

Error code	Meaning	Error level
6-04	The RAM (random-access memory) is in error.	4

When the display reads “cAution 1-”**

A signal processing circuit board (SP-1 board) error has occurred.

Error Code 1-**

Error code	Meaning	Error level
1-01	The playback tape main ID is illegal and the output signal is muted.	1
1-02	The playback tape sub-ID is illegal.	1
1-10	The servo was unlocked during recording and the unit came to a stop.	2
1-11	The digital audio input signal is in error during recording.	2
1-20	The tape has reached its beginning or end during locate function execution.	2
1-21	Searching of points on a tape is interrupted because program numbers are out of sequence.	2
1-22	Locating of a point on a tape is interrupted because the time code is not consecutive and is not recorded at the desired locate point.	2

When the display reads “cAution 2-”**

A servo circuit board (SRVO board) error has occurred.

Error Code 2-**

Error code	Meaning	Error level
2-01	The unit is in the adjustment mode.	3

When the display reads “cAution 5-”(When the optional DABK-7010 is installed)**

A time code reader/generator circuit board (TC-1 and TC-2 boards) error has occurred.

Error Code 5-**

Error code	Meaning	Error level
5-01	The time code reader/generator circuit board (TC-1 and TC-2 boards) enters the adjusting mode.	3

When the display reads “cAution 6-”(When the optional DABK-7012 is installed)**

A memory start circuit board (MEM board) error has occurred.

Error Code 6-**

Error code	Meaning	Error level
6-01	The memory start circuit board (MEM board) enters the adjusting mode.	3

7-3. Flashing Indicator Warnings

If there is any erroneous connection or data setup, the unit cannot function normally. If such an abnormal condition exists, the associated indicator on the display flashes off and on for warning purposes.

This section describes such warnings given by flashing indicators.

Flashing indicator warnings

Flashing indicator	Description/remedy	See pages ____
TIME CODE	Although the "TC BASE" of the setup menu is set to "TC," no professional time code (SMPTE/EBU) is recorded on the playback tape. Therefore, change the TC BASE setting or record time code onto the tape.	See the section on "tc bBASE (TIME CODE BASE)" (page 5-45).
TIME CODE ABS TIME	Although the "TC BASE" of the setup menu is set to "ABS TC," no absolute time (ABS TIME) is recorded on the playback tape. Therefore, change the TC BASE setting to TC. Also make sure that time code is recorded on the tape.	
EBU	Although the EBU time code format is selected, the received time code input is not in the EBU format. Make sure that the time code format selection agrees with that of the received time code.	See the section on "rEF tcF (REFERENCE TIME CODE FORMAT)" (page 5-47).
SMPTE	Although the SMPTE time code format is selected, the received time code input is not in the SMPTE format, or the drop-frame/non-drop frame selection for the SMPTE format disagrees with that for the received input (note that the unit does not distinguish between 30 Hz and 29.97 Hz). Make sure that the time code format selection is exactly the same as for the received input.	
SMPTE EBU	Although the film time code format is selected, the received time code input is not in the film format. Make sure that the time code format selection agrees with that of the received input.	
VIDEO	Although the front panel SYNC signal selector is set to the external video sync mode (VIDEO), synchronization is not effected by the video signal. During playback, the internal master clock is automatically selected, so that playback is possible. When recording, however, the unit cannot enter the record mode. Make sure that a video signal is received from outside, and that the frequency of the input video signal agrees with the frequency preset in the unit (when the optional DABK-7010 is installed).	_____
EXT SYNC	Although the front panel SYNC signal selector is set to the external sync mode (EXT), synchronization is not effected by the word sync signal or AES/EBU format D-I sync signal (when the optional DABK-7011A/7011B is installed). During playback, the internal master clock is automatically selected, so that playback is possible. When recording, however, the unit cannot enter the record mode. Make sure that a sync signal input is being received, and that the frequency of the sync signal input agrees with the frequency preset in the unit. Also make sure that the rear panel EXT SYNC selector position (WORD or D-I) agrees with the received sync signal input.	_____

Flashing indicator	Description/remedy	See pages
D-I	Although the AUDIO INPUT selector is set to DIGITAL, the input digital audio signal frequency does not precisely agree with the sampling frequency setting in the unit (when the optional DABK-7011A/7011B is installed). When using the input digital audio signal, check for correct synchronization. If you are not using this signal, you may ignore this warning. Note, however, that the unit cannot enter the record mode.	_____
EXT TIME CODE	When an attempt is made to record in the ASSEMBLE or INSERT SUB mode with the recording time code selector (on the DABK-7010, optional) on the rear panel in the EXT position, no time code signal input is received from outside. Therefore, input a time code signal or set the recording time code selector to INT.	_____
44.1	Although the unit operates at a frequency of 48 kHz or 32 kHz, the front panel SAMPLING FREQ selector setting or external sync signal sampling frequency is 44.1 kHz. Make sure that all the frequency settings are equal.	_____
48	Although the unit operates at a frequency of 44.1 kHz or 32 kHz, the front panel SAMPLING FREQ selector setting or external sync signal sampling frequency is 48 kHz. Make sure that all the frequency settings are equal.	_____
32	Although the unit operates at a frequency of 48 kHz or 44.1 kHz, the front panel SAMPLING FREQ selector setting or external sync signal sampling frequency is 32 kHz. Make sure that all the frequency settings are equal.	_____
ASSEMBLE, INSERT SUB	An attempt to start recording has failed because recording mode setup is not completed. Therefore, press an appropriate record mode select key.	_____
WIDE	<ul style="list-style-type: none"> An attempt to start recording has failed because the lock range (SYNC NARROW) in the setup menu is set to OFF (WIDE). Set the lock range to ON (NARROW). When an attempt is made to start SYNC PB operation, locking is not properly accomplished because the lock range is set to OFF (WIDE). Set the lock range to ON (NARROW). 	See the section on "SYnc nrr (SYNC NARROW)" (page 5-52) and the section on "SYncPb (SYNC PB)" (page 5-68).
SYNC PB	An attempt to start recording (including writing/erasing Start ID) has failed because the phase of the playback time code has not synchronized with that of the input video signal yet. Start recording after both phases are locked to each other (after the SERVO indicator lights up). To start recording, press the PLAY key while holding the REC key down.	_____

7-4. Operating Error Warnings

If you commit any operating error or attempt to perform an illegal operation, the associated warning appears on the display. If such a warning is displayed, redo operations properly.

Operating error warnings

Displayed warning	Comment
-- iLLE GAL -- (ILLEGAL)	The pressed key is inoperative. Perform correct operating procedures. Typical illegal operational attempts are: <ul style="list-style-type: none">• An attempt is made to record while the REC INH indicator is lit.• An attempt is made to change the recording mode setup during playback.• The MEMORY START key is pressed during playback (when the optional DABK-7012 is installed).• The START ID WRITE key is pressed while the unit is in the stop mode.
-- not LocAL -- (NOT LOCAL)	A tape transport control key is pressed when the REMOTE/LOCAL selector is placed in the REMOTE position. To operate the keys on the unit, set the selector to LOCAL.
-- bot -- (BOT)	An acronym for "Beginning Of Tape". This warning is displayed if an attempt is made to run the tape backward in the cue mode or activate the REW key when the tape is already at the beginning.
-- Eot -- (EOT)	An acronym for "End Of Tape". This warning appears if an attempt is made to forward the tape in the cue mode or the PLAY key, FF key, or REC+PLAY key (simultaneous pressing of the REC and PLAY keys) is pressed when the tape is already at the end.

Appendixes

Specifications	A-1
General Information on the DAT Format	A-5
Index	A-11

Specifications

General

Power requirements	100 V/120 V/220 V/230 V to 240 V AC ($\pm 10\%$), selectable, 50/60 Hz
Power consumption	80 W
Operating temperature	5°C to 40°C (41°F to 104°F), function guaranteed 10°C to 35°C (50°F to 95°F), performance guaranteed
Operating humidity	20% to 90%, function guaranteed 30% to 70%, performance guaranteed
Storage temperature	-20°C to +55°C (-4°F to +131°F), without moisture condensation
Weight	19 kg (41 lb 14 oz)
Dimensions	424 × 132 × 464 mm (w/h/d) (16 ³ / ₄ × 5 ¹ / ₄ × 18 ³ / ₈ inches)
Accessory supplied	AC power cord

Digital audio input and output section

Number of record channel	2 channels
Sampling frequency	48 kHz/44.1 kHz/32 kHz, selectable
Quantization	16-bit linear (each channel)
Error correction	Double-encoded Reed Solomon code
Modulation system	8-10 modulation

Tape recording section

Format	IEC digital audio tape cassette system DAT for professional use
Head	Rotary head (4-head) Head height difference between a pair of heads (leading and trailing heads): 8.5 T
Drum rotation	2,000 rpm (standard recording/playback, long time playback)
Tape speed	8.15 mm/sec. (standard recording/playback) 4.075 mm/sec. (long time playback)
Relative tape speed	3.133 m/sec.
Track pitch	13.6 μ m
Tape	Digital audio tape
Recording time	120 minutes (with tape type DT-120)

Mechanical section

Tape playback speed variable range	±12.5%
Fast-forward/rewind	Within 60 seconds (with tape type DT-120)
Rise time	0.7 seconds or less (standby ON) 1.4 seconds or less (standby OFF)
Searching speed	150 times max. normal playback speed
Cuing speed	±1/2, ±1, ±3, ±8 times normal playback speed
Locating accuracy	Within ±3 frames
Chasing accuracy	Within 0.4 milliseconds

External sync section

Word sync signal frequency (when a DABK-7011A/7011B is installed)	44.1 kHz/48 kHz (within ±100ppm or ±12.5% (WIDE mode))
Video sync signal frequency (when a DABK-7010 is installed)	Within ±100ppm (NTSC/PAL/SECAM)
Direction of synchronization	Word sync: both directions Video sync: input direction

Input/output section

Analog audio input	Reference level: +4 dBs Maximum level: +24 dBs Impedance: 10 kilohms/600 ohms, balanced/unbalanced Connector: XLR-3-31
Analog audio output	Reference level: +4 dBm (terminating in 600 ohms) Maximum level: +24 dBm (terminating in 600 ohms) Impedance: below 50 ohms, balanced/unbalanced Connector: XLR-3-32
Digital audio input (when a DABK-7011A/7011B is installed)	Format: IEC 958 digital audio interface (AES/EBU) (with transformer) Impedance: 110 ohms, balanced Connector: XLR-3-31
Digital audio output (when a DABK-7011A/7011B is installed)	Format: AES/EBU (with transformer) Impedance: 20 ohms, balanced Connector: XLR-3-32

Time code input (when a DABK-7010 is installed)
 Format: IEC 461 (SMPTE/EBU)
 Rated level: 0.5 to 10 Vp-p (at 10 kilohms)
 Connector: XLR-3-31

Time code output (when a DABK-7010 is installed)
 Format: SMPTE/EBU
 Rated level: 2.4 Vp-p, load impedance
 600 ohms
 Connector: XLR-3-32

Monitor output
 Reference level: -20 dBs
 Connector: phone jack
 Impedance: 150 ohms

Headphones output
 Reference level: -26 dBs + -26 dBs (load
 impedance 8 ohms)
 Connector: stereo phone jack

Word sync input (when a DABK-7011A/7011B is installed)
 Format: 50% duty
 Level: TTL compatible
 Impedance: 75 ohms, unbalanced
 Connector: BNC type

Word sync output (when a DABK-7011A/7011B is installed)
 Format: 50% duty
 Level: TTL compatible
 Impedance: 75 ohms, unbalanced
 Connector: BNC type

Video sync input (when a DABK-7010 is installed)
 Format: NTSC/PAL/SECAM
 Level: 0.3 to 4 Vp-p
 Impedance: 75 ohms, unbalanced
 Connector: BNC type

37-pin parallel remote
 Format: parallel
 Level: TTL compatible
 Connector: D-SUB 37-pin (female)

8-pin parallel remote
 Format: parallel
 Level: TTL compatible
 Connector: DIN 8-pin (female)

Computer interface (when a DABK-7013 is installed)
 Format: serial
 Level: RS-232C
 Connector: D-SUB 25-pin (female)

Audio section

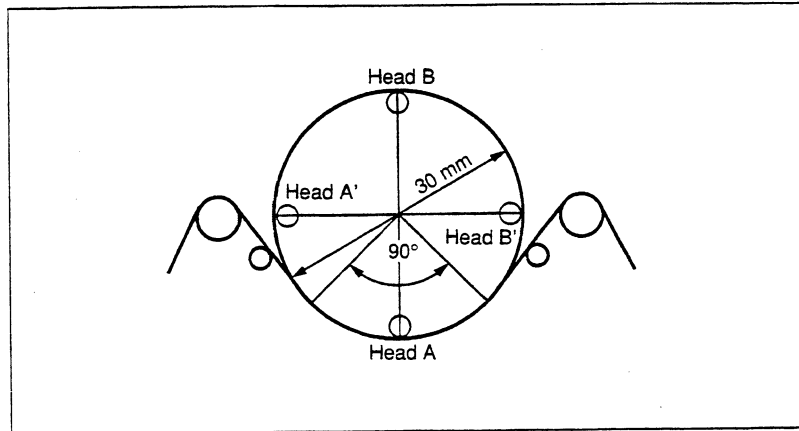
Frequency response	20 Hz to 20 kHz ± 0.5 dB
Signal-to-noise ratio	More than 90 dB
Total harmonic distortion	Less than 0.05% (at reference level)
Crosstalk between channels	More than 80 dB at 8 kHz
Emphasis	15 μ sec./50 μ sec.
Phase difference between channels	Within 10° (20 kHz)
Signal delay time	About 135 milliseconds (RAW mode)

Design and specifications are subject to change without notice.

General Information on the DAT Format

Recording Format of the DAT

To record and play back the digital signal converted from the analog signal, you need a recording/playback system that ensures the frequency range within a few megahertz. Since this is very difficult for the conventional stationary head system, the DAT deck has adopted a helical scan system with rotary heads that provides fast relative tape speed. In addition, the DAT uses metal tape. These factors provide a density recording of 114 Mbit/inch². The PCM-7010 employs a 4-head system with the tape wrapping around 90° for smooth and stable tape transport.

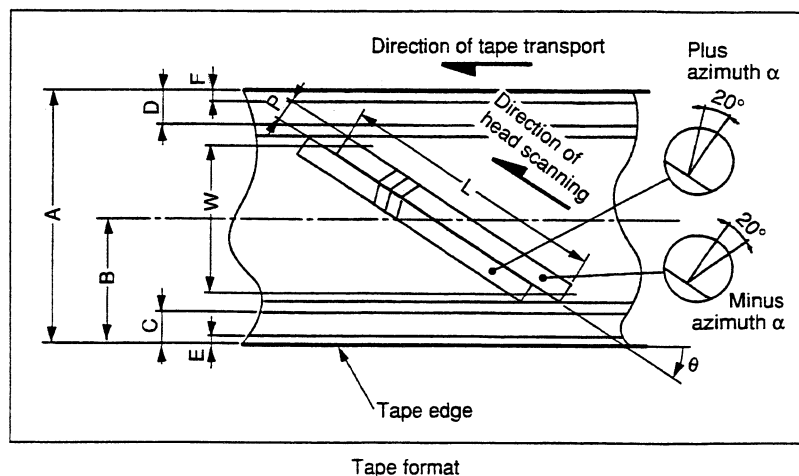


4-head drum

Tape Format and Construction of a DAT Cassette

The tape format of a DAT and construction of a DAT cassette is illustrated below. Although the width of the tape is the same as conventional audio cassette tape, the tolerance is very strict, as much as $+0/-0.02$ mm.

The cassette shell has a sealing mechanism to prevent contamination of the tape.



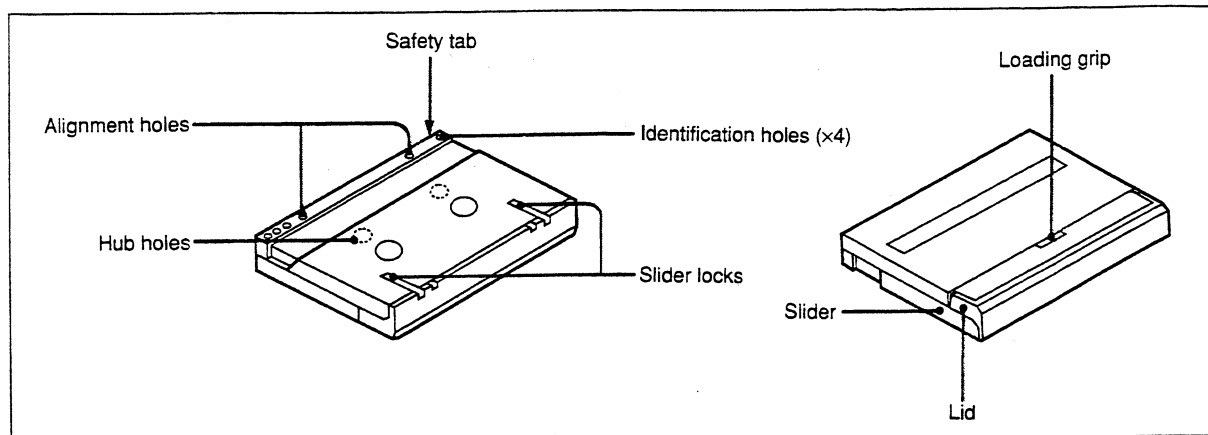
Tape format

Tape format of DAT

		48 kHz mode, 44.1 kHz mode	44.1 kHz wide track mode (for contact printing)
A	Tape width (mm)	3.81 (+0, -0.02)	
W	Width of recording area (mm)	2.613	
L	Track length (mm)	23.501	23.471
P	Track pitch (μm)	13.591	20.41
B	Track center (mm)	1.905	
C	Optional track 1 (mm)	0.5	
D	Optional track 2 (mm)	0.5	
E	Edge guard 1 (mm)	0.1	
F	Edge guard 2 (mm)	0.1	
θ	Track angle (degrees)	$6^\circ 22'59.5''$	$6^\circ 23'29.4''$
α	Head gap azimuth angle (degrees)	$\pm 20^\circ (\pm 15')$	

Note: With $\phi 30$ (mm) head drum, wrap angle is 90.0° , and still angle is $6^\circ 22'$.

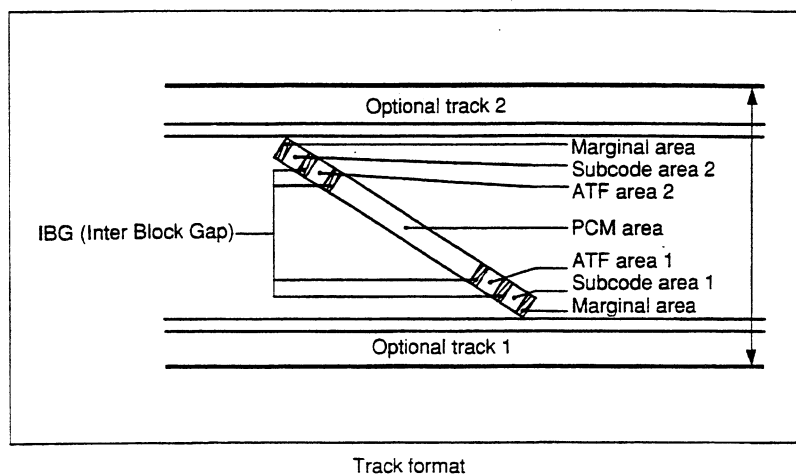
Construction of a DAT cassette



Construction of a DAT cassette

Track Format

A DAT can record various kinds of information in addition to the audio signal as illustrated below. Since the information, such as subcodes are recorded in different areas, it does not affect the audio signal, and enables post-edit recording of the data without erasing the audio signal.



Marginal areas

These areas are located on both margins of the tape for stable contact between the tape and the rotating head. No data is recorded in these areas.

Subcode areas 1 and 2

Subcodes (such as Start ID, and time code) are recorded in these areas. These data are recorded in two areas to avoid burst error, and for easier access during high speed search. The capacity of these areas is about four times that of a compact disc, and it contains many possibilities for the future.

ATF (Automatic Track Finding/Following) areas 1 and 2

The signal for tracking (ATF signal) is recorded in these areas, enabling a stable tracking performance of the rotating heads.

IBGs (Inter Block Gaps)

These gaps are provided on both sides of each ATF area so that the ATF signal is not affected by unstable tracking by the heads in the insert mode.

PCM area

The digital audio signal is recorded in this area. In addition to the signal, Main IDs containing the data for sampling frequency, parity bit, etc., are recorded together here.

A

- AES/EBU, IEC958 selector 2-18
- AFTER CUE 5-71
- ALARM (When the ALARM indicator comes on) 7-1
- ANALOG AUDIO INPUT level controls 2-1, 2-3
- ANALOG audio input/output section 2-13, 2-16
- Assemble mode
 - ASSEMBLE mode 4-3
 - Selecting whether or not to write the time data automatically when assemble recording starts 5-67
 - Selecting whether to stop with rollback or not 5-70
- Audio data A-4
- AUDIO INPUT selector 2-1, 2-3
- AUDIO REFERENCE 5-31
- AUDIO REFERENCE PEAK HOLD 5-37

C

- Cassette
 - Construction of a DAT cassette A-7
 - Preventing accidental erasure 3-21
- CAUTION 5-35
- Computer interface section 2-13, 2-14
- Connections
 - Basic connections 3-2
 - Connection examples for advanced facilities 3-4
 - Power connection 3-10
- Connector panel (rear) 2-13
- COPY ID 5-65
- CROSS-FADE 5-89
- CUE mode key and indicator 2-4, 2-6
- Cuing
 - Getting out of cue mode 4-21
 - Selecting whether to shift the mode to STOP mode or PLAY mode after exiting the cue mode by pressing the CUE key during cue mode 5-77
 - Setting cue mode and cuing 4-20

D

- DABK-7010 1-5
- DABK-7011A/7011B 1-6
- DABK-7012 1-6
- DABK-7013 1-6
- DAT (Recording format of the DAT) A-5
- DATE ADJUST 5-82
- DATE AUTO REC 5-67
- Date indicator 2-10, 2-12
- Dial menu
 - Description of the dial menu 5-3
 - Dial menu list 5-6
 - Dial menu operations 5-30
- DIGITAL audio input/output section 2-13, 2-17
- Digital copying between PCM-7010 and the following equipment
 - BVH-2800 1-inch VTR system 6-15
 - D-1/D-2 format digital VTR 6-12
 - PCM-1630 digital audio processor system 6-2
 - PCM-3324A or PCM-3348 digital audio recorder 6-9
 - PCM-3402 digital audio recorder 6-6
- Digital I/O indication 2-10, 2-11
- DIGITAL I/O SELECT 5-50
- Display 2-8
 - Adjusting the brightness of the display on the front panel 5-81
 - DISPLAY key menu display area 2-10, 2-11
 - DISPLAY select key 2-3
 - Selecting the menu level of the display menu 5-38
 - Selecting the setup menu level for the display 5-79
- Display area 2-8, 2-9
- DISPLAY key menu
 - Description of the DISPLAY key menu 5-2
 - DISPLAY key menu list 5-5
 - DISPLAY key menu operations 5-12
- Display menu
 - Description of the display menu 5-6
 - Display menu list 5-6
 - Display menu operations 5-30
- DISPLAY MENU GRADE 5-38
- DISPLAY select key 2-1, 2-3, 5-11

Displaying the presence of an optional board 5-41
Displaying the rotation time of the head drum 5-42
DT-10CL 1-6
DT-46R, DT-60R, DT-90R, DT-120R 1-6

E

EJECT key 2-1, 2-2
ELAPSE 5-17
Emphasis indicator 2-10, 2-12
 Selecting the emphasis mode 5-51
ERROR 5-34
Error
 Displaying the error code 5-34
 Displaying the last error point 5-39
 Error codes 7-6
 Error levels 7-4
 Error messages 7-4
EXT SYNC selector 2-13, 2-17
EXT TIME CODE 5-19
EXT U-BIT 5-20

F

Factory settings 3-17
FL DISPLAY 5-81
FREE RUN 5-55
Front panel 2-1

G

GEN SET TIME 5-23
GEN SET U-BIT 5-25
GEN TIME CODE 5-21
GEN U-BIT 5-22
Generator mode indicator 2-10, 2-12
GENERATOR OUT 5-58

H

HEADPHONES connector section 2-1

HOLD TIME 5-85
HOUR TIME 5-42

I

IEC(958)(SPDIF) digital audio input/output section 2-18
Initial settings 3-12
INPUT GAIN 5-30
INPUT MONITOR key and indicator 2-4, 2-6
INPUT MONITOR key (Selecting whether or not to accept the command from the INPUT MONITOR key) 5-75
INPUT SWITCH 5-75
Input/output interface A-2
Insert mode
 INSERT SUB(subcode) data 4-3

L

LAST ERROR 5-39
Level meter
 Displaying the level meter indications numerically 5-36, 5-37
 Level diagram 4-8
 Level meters 2-8, 2-9
 Selecting the level meter peak hold mode 5-83
 Selecting the peak level hold time of the lever meters 5-85
 Selecting the release time for the level meters 5-86
Loading 3-20
Locate
 ID locate 4-24
 Locating specific points on a tape 4-16
 Setting the locate point 5-14
 Setting the locate point value back to "0" 5-15
LOCATE key and indicator 2-4, 2-7
LOCATE POINT 5-14
Location and function of parts and controls
 Connector panel (rear) 2-13
 Display 2-8
 Front panel 2-1
LOW CUT FILTER 5-92

M

- MARK key 2-4, 2-5
- Memory shuttle 4-29
- Memory start
 - Outputting playback signals immediately after pressing the PLAY key 4-29
 - Selecting the duration (delay time) to output the sound after pressing the PLAY key for memory start playback 5-73
 - Selecting whether or not to activate the memory start when you turn the power on 5-72
- MEMORY START DEFAULT 5-72
- MEMORY START DELAY TIME 5-73
- MEMORY START key and indicator 2-4, 2-5
- Menus (general description) 5-1
- MONITOR output connectors 2-13, 2-16
- MUTE indicator (When the MUTE indicator comes on) 7-2

O

- OPTION 5-41
- OUTPUT GAIN 5-32
- "OVER" (Selecting the hold mode for the "OVER" segments of the level meters) 5-84
- OVER HOLD 5-84
- OVER LEVEL SENSITIVITY 5-87

P

- PANEL SWITCH 5-76
- PB CONDITION 5-80
- PB CONDITION (When the PB CONDITION indicator comes on) 7-2
- PCM-7030 1-5
- PCM-7050 1-5
- PEAK HOLD 5-86
- Playback
 - Controlling the playback speed
 - Variable-speed playback 4-27
 - Outputting playback signals immediately after pressing the PLAY key
 - Memory start function 4-29
 - Playback procedure 4-19
- Power supply 3-17

- PRE-EMPHASIS 5-51
- PROGRAM NO. LOCATE 5-16
- POWER switch 2-1, 2-2
- Punch-in recording 4-3
- Punch-out recording 4-3

R

- REC INH (When the REC INH indicator comes on) 7-3
- REC USER BIT 5-59
- RECALL 5-44
- Recommended equipment and optional accessories 1-5
- Recording
 - Basic recording procedure 4-7
 - Controlling the recording level 4-8
 - Record mode select keys 2-6
 - Recording 4-1
 - Recording the time code starting from the set initial value 5-23
 - Recording the set user bit 5-25
 - Selecting the recording mode 4-3
- REF VIDEO input section 2-13, 2-18
- REFERENCE TIME CODE FORMAT 5-47
- RELEASE TIME 5-86
- REMOTE connector 2-14, 2-15, 3-16
- REMOTE/LOCAL selector 2-1, 2-2
- RENUMBER 5-29
- Renumbering Program Number 4-16
- RM-D7100 1-5
- RM-D7200 1-5
- RMM-30 1-6
- RMM-31 1-6
- ROLLBACK STOP 5-70
- RS-232C connector 2-13, 2-15

S

- SAMPLING FREQ selector 2-1, 2-3
- Sampling frequency
 - Sampling frequency indicator 2-8, 2-9
 - Selecting the sampling frequency 3-12
- SDIF-2 digital audio input/output section 2-19
- Selecting and displaying the input signal gain 5-30

- Selecting and displaying the output signal level 5-32
 - Selecting the audio signal format for digital input/output 5-50
 - Selecting the copy ID which will be recorded within the main ID 5-65
 - Selecting the cross-fade time 5-89
 - Selecting the input signal 3-14
 - Selecting the level detection sensitivity that lights the "OVER" segments of the level meters 5-87
 - Selecting the level meter peak hold mode 5-83
 - Selecting the operation mode of the low cut filter 5-92
 - Selecting the peak level hold mode of the level meters 5-85
 - Selecting the setup menu level for the system control 5-63
 - Selecting the soft mute time 5-91
 - Selecting the time code format and the reference video signal frequency 5-47
 - SERVO (When the SERVO lock indicator goes off) 7-3
 - Selecting whether to automatically write the time data or not during assemble recording 5-67
 - Setting and displaying the input signal gain 5-27
 - Setting back to the factory-set status 5-12
 - Setting the time of the internal clock 5-82
 - Setup menu
 - Description of the setup menu 5-4
 - Selecting the expanded setup menu 5-53
 - Setup menu list 5-7
 - Storing customized data for the setup menu 5-43
 - SETUP MENU for DISPLAY 5-79
 - SETUP MENU for SYSTEM CONTROL 5-63
 - SETUP MENU for TIME CODE 5-54
 - SETUP MENU GRADE 5-53
 - Shuttle dial 2-4, 2-6, 4-14
 - Skip ID indicator 2-10, 2-12
 - SOFT CUT 5-91
 - Specifications A-1
 - STANDBY key 2-4, 2-5
 - Start ID
 - Erasing Start ID 4-13
 - Selecting whether to automatically write the Start ID or not during assemble recording 5-64
 - Start ID write/erase indication 2-10, 2-11
 - Writing Start ID 4-11
 - START ID AUTO REC 5-64
 - START ID keys 2-4, 2-7
 - STORE 5-43
 - Subcode data 4-4
 - SYNC NARROW 5-52
 - SYNC PB 5-68
 - SYNC REC key 2-4, 2-5
 - Sync recording 4-3
 - SYNC signal selector 2-1, 2-3
 - Synchronization
 - External sync data A-2
 - Lock range indicator 2-10, 2-11
 - Selecting the lock frequency range in external synchronization (word) mode 5-52
 - Selecting whether or not to synchronize the playback time code with the phase of the input video signal during playback 5-68
 - Sync signal indication 2-10, 2-11
 - SYNC signal selector 2-3
 - System configuration example 1-4
-

T

Tape

- Displaying the tape run time 5-17
- Selecting whether to accept the command from the tape transport control keys or not when playing back in the local mode 5-76
- Tape playback speed variable range A-2
- Tape recording format A-1
- Tape copying between PCM-7010 and the following equipment
 - Analog audio tape recorder 6-20
 - Analog VTR 6-18
- TAPE TIME CODE FORMAT 5-40
- Tape time display area 2-8, 2-9
- Time code
 - Displaying the internal generator time code 5-21
 - Displaying the time code format of the tape 5-40
 - Displaying the time code input to the unit 5-19
 - Selecting the basis of the time code 5-45
 - Selecting the operation mode of the internal time code generator 5-55
 - Selecting the setup menu level for the time code 5-54
 - Selecting the time code format 5-47

Selecting the time code format and the
reference video signal frequency 5-47
Selecting the time code output 5-57
Selecting whether to apply the phase adjustment
of the time code output to the analog audio
signals or digital audio signals 5-61
Selecting whether to regenerate the external
time code or not 5-58
Setting the start time value 5-23
Time code indication 2-10, 2-11
Time code mode indicator 2-12
TIME CODE BASE 5-45
TIME CODE DELAY 5-61
TIME CODE input/output section 2-13, 2-18
TIME CODE REGENERATE 5-58

U

U-BIT 5-18
Unloading 2-2, 3-20
User bit
Displaying the user bit of the external time
code input to the unit 5-20
Displaying the user bit of the internal
generator time code 5-22
Displaying the user bit on the playback
tape 5-18
Selecting the user bit when recording 5-59
Selecting whether to display the user bit data
for the DISPLAY key menu or not 5-60
Setting the user bit 5-25
USER BIT DISPLAY 5-60

V

VARI SPEED 5-27
VARI SPEED key 2-4, 2-7
Variable-speed (VARI SPEED) playback
Controlling the playback speed 4-27
Setting the playback speed to the normal
speed 5-28
Setting the variable speed value and display
of the set value 5-27

W

Warning
Displaying the warning code 5-35
Flashing indicator warnings 7-10
Operating error warnings 7-12
Warning indicators 2-5
Word sync signal 2-3, 3-13
WORD SYNC signal input/output
section 2-13, 2-17
Writing/erasing the Program Number 4-14

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